TECHNOLOGY DEPT.

APRIL 1, 1957

Telephone Engineer

AND MANAGEMENT

THE NATIONAL TELEPHONE MAGAZINE

V.61 #7

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APR 10 1957
DETROIT

FEATURING IN THIS ISSUE

- ★ PROFITS AND SERVICE THROUGH BETTER MANAGEMENT
- ★ HOW's YOUR RATING AS A BOSS?
- ★ MODERN CABLE CONSTRUCTION

fast and sure

The big race today is between rising costs and profit margins.
To make *your* Directory a winner, here's a sure tip.

Independent telephone companies in 4400
communities are getting bigger revenues by using our
Complete Directory Service Plan.

To get out—and keep out front—call or write our nearest office.
We'll be happy to give you the facts.

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Lightweight polyethylene-covered cable

Best in rugged terrain

Installation of additional telephone lines is a costly undertaking here in the West Virginia mountains. Steep slopes overgrown with trees and underbrush make rights-of-way practically inaccessible to motorized equipment. In addition, holes for poles must often be blasted through rock to provide the proper depth.

Most of these problems are solved by cable covered with polyethylene, now used almost exclusively in this area. The extremely light weight of the plastic results in a cable that can be strung on existing poles, often without adding crossarms. Color-coding of pairs aids in installation and trouble-shooting. Where lines are strung along railroads and near coal preparation plants, the chemical resistant polyethylene promises protection from chemical fumes.

Both BAKELITE Brand Polyethylene and Vinyl Plastics have acquired a reputation for outstanding dependability as wire covering materials. They are already in wide use, singly or in combination, in signal control cable, utility line wire and service drop, in power cable and coaxial cable. These materials meet IMSA specifications for fire alarm and signal control cable; ASA standards for weatherproof wire; ASTM D1238-52T Type II, dielectric materials; as well as REA requirements for plastic-covered telephone wire.

To keep you abreast of their latest developments and applications of interest to the telephone industry, Bakelite Company technical publications are available without cost by writing Dept. QT-183.

BAKELITE BRAND PLASTICS

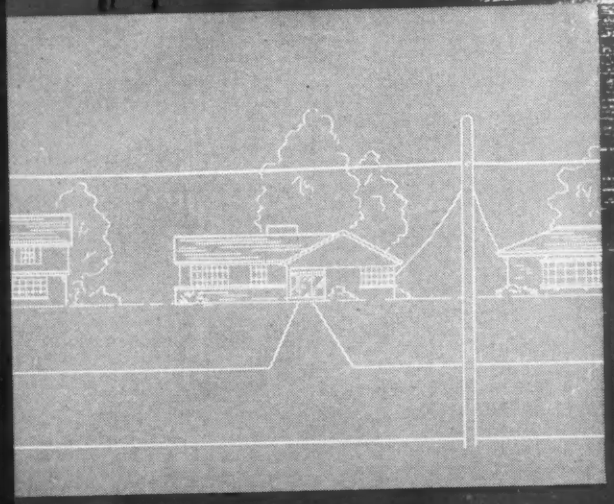
BAKELITE COMPANY, *A Division of Union Carbide and Carbon Corporation* UCC 30 East 42nd Street, New York 17, N. Y.

In Canada: Bakelite Company, Division of Union Carbide Canada Limited, Belleville, Ontario

The term BAKELITE and the Trefoil Symbol are registered trade-marks of UCC

TELEPRENE

astonished the industry



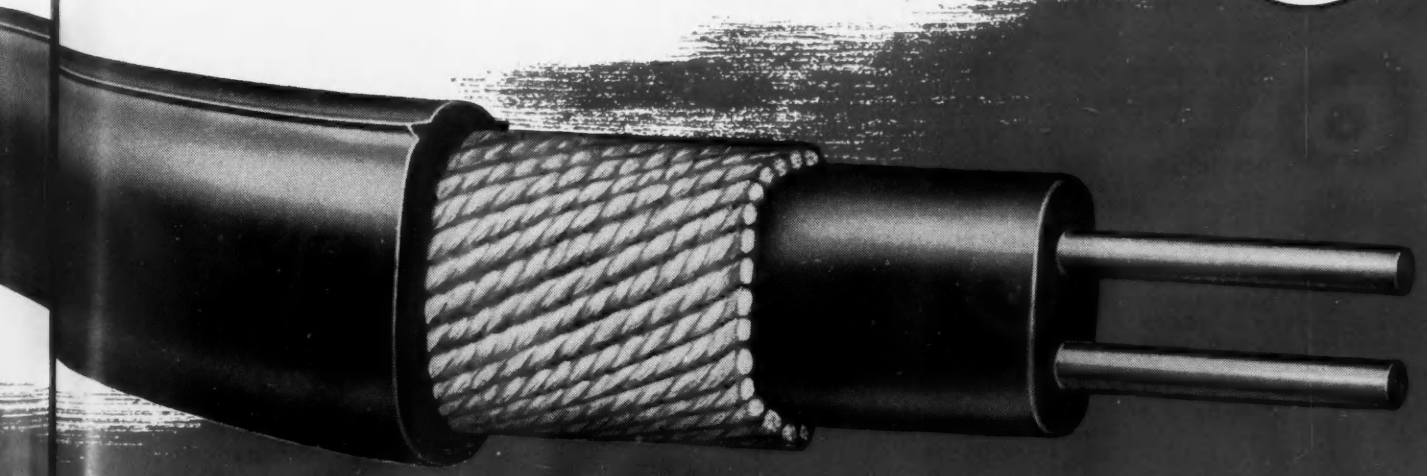
WB has that which others have yet to gain . . . EXPERIENCE

drop wire...

After more than ten years in test installations WB TELEPRENE Drop Wire shows no appreciable deterioration . . . it is still providing good-as-new service. Before WB introduced neoprene jacketed TELEPRENE the *average* life of drop wire was only seven years . . . up to now no "average" has been established for TELEPRENE.

Independent Telephone Companies have saved hundreds of thousands of dollars by using extra-long-lasting neoprene jacketed TELEPRENE . . . consequently they now expect comparable high quality from *all* WB telephone wires . . . AND THEY GET IT!

INDEPENDENT



Well Built Wires Since 1899

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WHITNEY BLAKE COMPANY

NEW HAVEN 14, CONNECTICUT

"Golly...everybody's ordering Automatic's Transistorized Repeaters"

No wonder the young lady is amazed. Thousands of AT-2 and AT-3 transistorized repeaters were placed in service in the first year—and the orders keep piling in. Here's why:

These repeaters offer an easy, inexpensive way to raise transmission on trunks and long lines. When combined, they overcome up to 85% of the line loss, provide up to 14 dB gain. On existing circuits, you'll avoid costly cable-loading; on new circuits, you can avoid the use of heavier gauge wire.

There are other advantages you'll like too. Maintenance is far lower because transistors are used. No special power supply or cooling facilities are needed. And these repeaters are space-saving—8 mount side-by-side on a 19″ rack.

Interested? Then write today for full details. Address: *Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7. Or call HAymarket 1-4300.*

AUTOMATIC ELECTRIC

GENERAL TELEPHONE SYSTEM

ORIGINATORS OF THE DIAL TELEPHONE

TELEPHONE ENGINEER & MANAGEMENT

THE NATIONAL TELEPHONE MAGAZINE

APRIL 1, 1957

Vol. 61 No. 7

RAY W. SMITH,
Publisher and Editor

JOHN G. REYNOLDS,
Managing Editor

ROY F. SMITH,
Advertising Director

DONALD C. SORENSEN,
Advertising Manager

HELEN G. McCORKLE,
Production Manager

EMILY BUDDE,
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E. E. GENTRY,
PHIL GLANZER,
GEORGE SHILAKES,
Field Correspondents

PAT LAWHORN,
Circulation Manager

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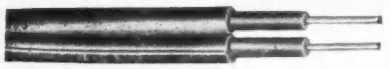
FRONT COVER

INDUSTRY MEMBERS shown on front cover participated in opening of telephone exhibit at the Smithsonian Institute. Left to right:—BRUCE QUISENBERRY, ROBERT B. WISEMAN, LEON F. ROBERTS, O. C. BAILEY, DUANE T. SWANSON, JAMES B. CARMICHAEL, EUSTACE L. FLORANCE, DR. MELVILLE BELL GROSVENOR, anl F. W. HAUPT. For complete story see page 57.

IN THE NEXT ISSUE

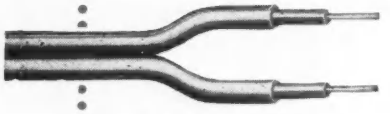
These articles are scheduled for coming issue of TELEPHONE ENGINEER & MANAGEMENT:— (1) "Use of The Dial Hand Test Set For Fault Location;" (2) "Planning Plant Practices;" "B.P.O. Uses Mobile Exchanges To Provide Temporary Facilities;" "Don't Be A Hermit — Participate In Civic Affairs."

ENDURPRENE
Drop Wires



Twisted Pair

Parallel Reinforced



Parallel Figure 8

for LONGER Service Life

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KELLOGG SWITCHBOARD AND SUPPLY COMPANY

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GENERAL INSULATED WIRE WORKS, INC. PROVIDENCE 5, R.I.

COMING CONVENTIONS

IOWA Independent Telephone Association, Fort Des Moines Hotel, Des Moines, Apr. 2-3.

NORTH DAKOTA Telephone Association, Gardner Hotel, Fargo, Apr. 8-9.

OHIO Independent Telephone Association, Deshler Hilton Hotel, Columbus, Apr. 16-17.

NEBRASKA Telephone Association, Hotel Cornhusker, Lincoln, Apr. 23-24.

INDIANA Telephone Association, Claypool Hotel, Indianapolis, May 8-9.

WISCONSIN State Telephone Association, Hotel Loraine, May 15-16.

ILLINOIS Telephone Association, Hotel Pere Marquette, Peoria, May 22-23.

KANSAS Telephone Association and **MISSOURI** Telephone Association, Town House Hotel, Kansas City, Kans., May 27-28.

PENNSYLVANIA Independent Telephone Association, Buck Hill Falls Inn, Buck Hill Falls, June 4-5.

MAINE Telephone Association, **NEW HAMPSHIRE** Telephone Association, and

VERMONT Telephone Association, Wentworth-by-the-Sea Hotel, Portsmouth, N. H., June 4-6.

CALIFORNIA Independent Telephone Association, Ambassador Hotel, Los Angeles, June 5-6-7.

WASHINGTON Independent Telephone Association, and **OREGON** Independent Telephone Association, Davenport Hotel, Spokane, Wash., June 13-14-15.

NEW YORK State Telephone Association, Scaroon Manor, Schroon Lake, June 17-19.

ARKANSAS Telephone Association, Arlington Hotel, Hot Springs, Sept. 16-17.

MICHIGAN Independent Telephone Association, Hotel Pantlind, Grand Rapids, Sept. 17-19.

ROCKY MOUNTAIN Telephone Association, Hotel Utah, Salt Lake City, Sept. 19-20.

WEST VIRGINIA Independent Telephone Assn., Blackwater Lodge, Davis, Sept. 30-Oct. 1.

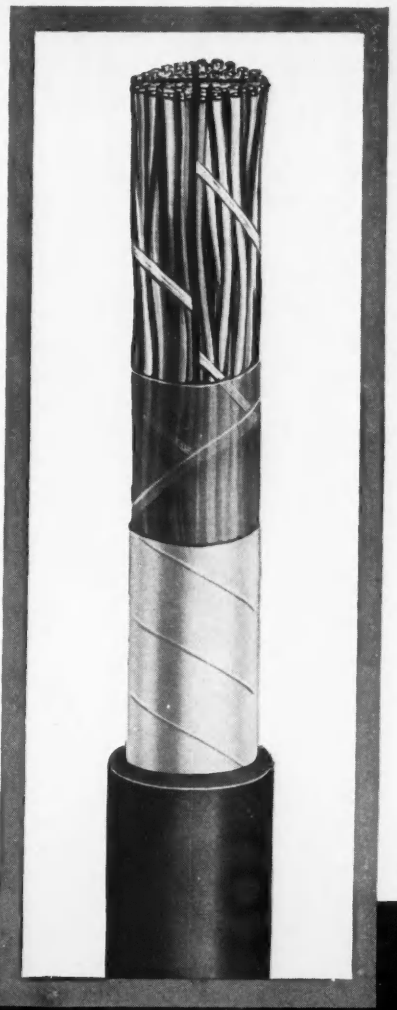
NORTH CAROLINA Independent Telephone Association, Carolina Hotel, Pinehurst, Oct. 3-4.

UNITED STATES Independent Telephone Association, Conrad Hilton Hotel, Chicago, Oct. 14-16.

FLORDIA Telephone Association, The Balmoral, Miami Beach, Dec. 2-3.

GENERAL CABLE

SUPERTEL



THERMOPLASTIC TELEPHONE CABLE

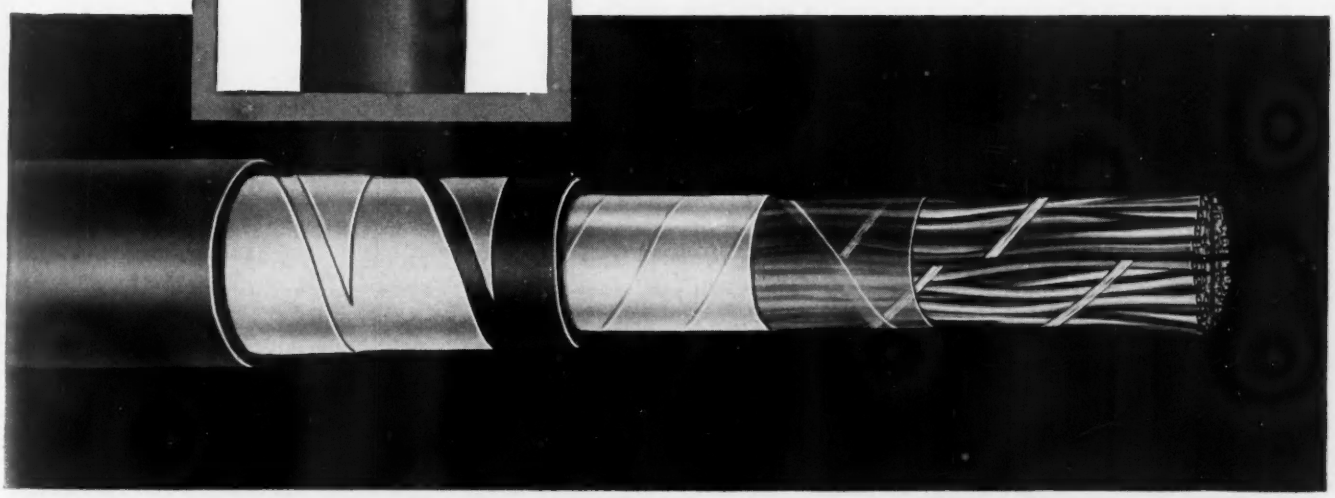
Light weight and easier handling without loss of permanent high quality transmission characteristics. Tough, high-molecular-weight polyethylene jacket provides superior resistance to abrasion, bending, weather, aging, or chemicals. General Cable quality controls assure minimum capacitance unbalances.

Available in 19, 22, 24 and 26 Awg up to 404 pairs.

General Cable has popular sizes in stock in many distributing centers throughout the country for fast delivery through Automatic Electric Sales Corporation and Leich Sales Corporation.

GENERAL CABLE CORPORATION
420 Lexington Avenue, New York 17, N. Y.
Offices and Distribution Centers Coast-to-Coast

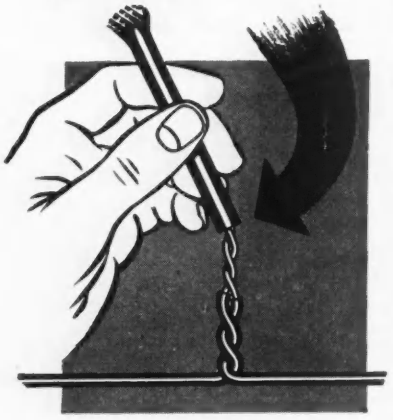
Type III: aerial and duct installations



Type VII: direct earth burial

for quality and service... **specify GENERAL CABLE**

"Super-Splice"®
makes splices
waterproof
...from
inside out!

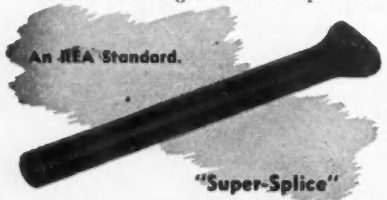


Superior Cable's exclusive economical "Super-Splice" is a plastic splice sleeve. It is sealed at one end and comes to you filled with an insulating and waterproofing compound.*

"Super-Splice" prevents leakage currents and breakdowns in the presence of moisture . . . good for 25,000 v. d. c.

Can be easily removed to re-enter the splice . . . the compound never hardens or oozes out no matter what the temperature.

*A Dow-Corning silicone compound.



"Super-Splice" is available for use with straight, butt or bridge splices.

For further information on economical "SUPER-SPLICE", write

SUPERIOR CABLE
SUPERIOR CABLE CORPORATION
Hickory, North Carolina

FREE LITERATURE

This feature of "Telephone Engineer and Management" helps you get up-to-date technical bulletins, catalogs and literature. To obtain your copies write Reader's Service Department, 7720 N. Sheridan Rd., Chicago 26, Ill.

Penta-Creosote Paste

FOLDER TITLED "The Androc Method," describes the Androc Chemical Company's five-step method for the ground-line treatment of utility poles.

Drafting Efficiency

WITH THE shortage of manpower obviously continuing, it is apparent that a careful, critical review of drafting methods and equipment can lead the way to improved operations. One way to pinpoint possible increases in productivity is to go, item by item, through a checkup-list showing every type of product used in a modern, well-equipped drafting room.

Such a list is available from the Frederick Post Company. It covers equipment and supplies from A to Z and suggests several specific ways to cut down waste motion, eliminate time-consuming methods, reduce fatigue, save space, etc.

Electrical Tape

BI-SEAL Electrical Tape, Type 2A, a product of Bishop Manufacturing Corp., now offers operating temperature ranges from a new high of +85°C to a new low of —55°C.

According to the manufacturer improved Bishop Bi-Seal Electrical Tape, Type 2A, never gets brittle . . . applies easily, even under extremely low temperatures, without stiffening or shattering . . . fuses into a homogenous, water tight seal. Tests reveal even longer weathering than the original long-life Bi-Seal under such weathering conditions as moisture, oxidation, sunlight, ozone, corrosive atmospheres, etc.

Bi-Seal's characteristics offer these advantages: virtually non-absorbent — self bonding, fuses into a solid mass, conforms perfectly to the most complex shapes — high dielectric strength — long storage life.

New Bi-Seal provides *as much or more* protection than the original wire or cable insulation and is highly recommended for communication and power transmission wire and cable splicing, moisture-proofing bimetal connections, sealing corrosion-resistant conduit couplings and in-resistant conduit couplings.

New booklet on new Bi-Seal Electrical Tape, Type 2A, gives specifications and the complete list of other Bishop tape products.

Sealing Connector

BOOKLET titled "A Sealing Connection For Small Insulated Conductors," from Minnesota Mining & Manufacturing Co., summarizes the important conclusions of three years of research effort leading to the development of a compact, wide range, no strip, sealing connector for plastic insulated conductor.

Permanent Magnets

A NEW 12-page catalog (P-M-121, TE&M) covering both cast and sintered permanent magnets has been published by General Electric's Magnetic Materials Section.

The publication supersedes the former catalog, PM-100. It includes information on magnetic and mechanical properties, approximate tolerances, magnet assemblies, sales and service as well as how-to-order—both G-E cast Alnico 5 and sintered Alnico 2 permanent magnets. Illustrations and engineering data in the catalog provide the user with required information for various shapes available.

It goes where business is!

REYNOLDS ALUMINUM OUTDOOR TELEPHONE BOOTH

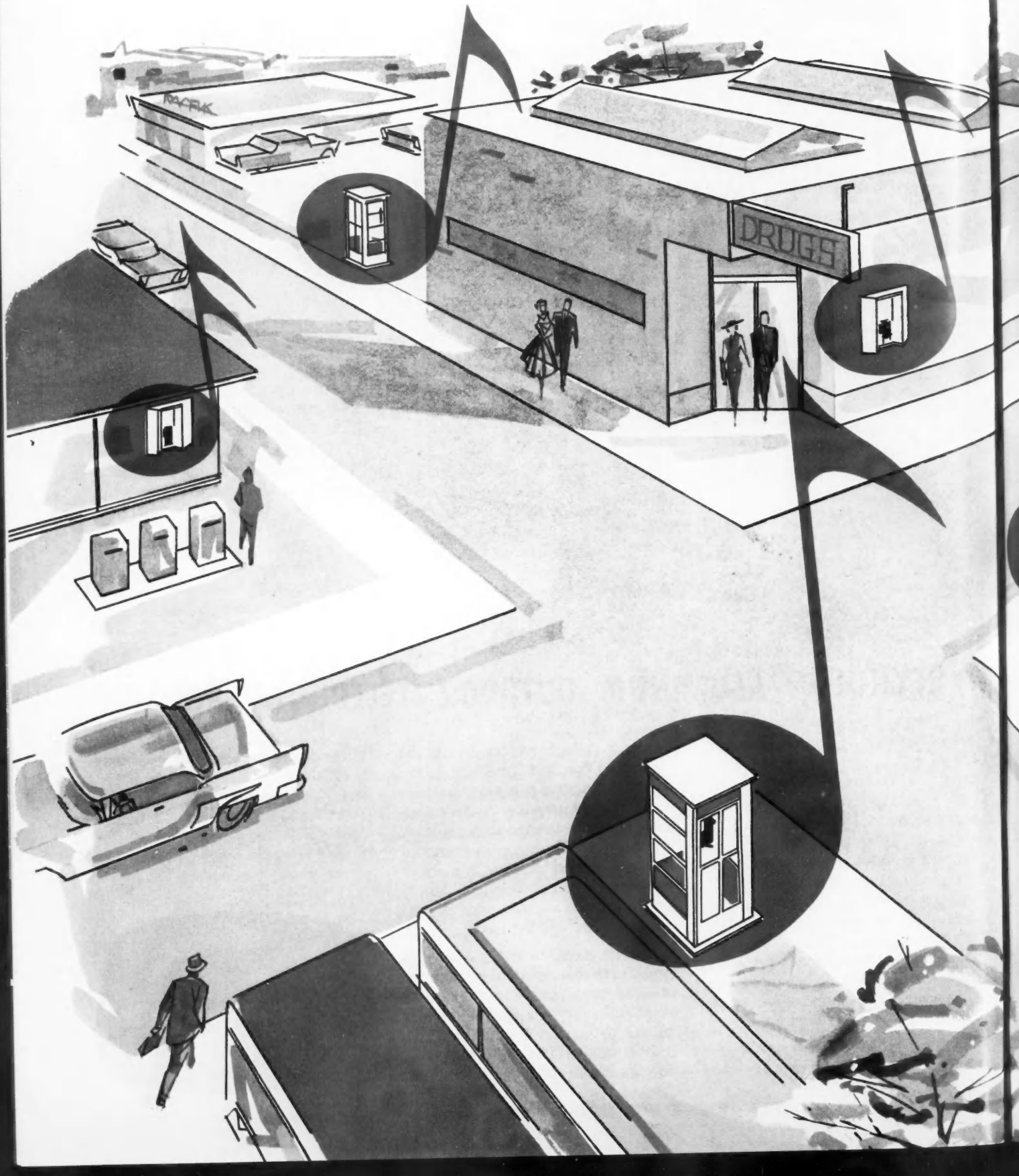
More Revenue – Less Maintenance. It's so quick and easy to go after extra-revenue business *where* it is . . . with lightweight, easy-to-set-up and easy-to-relocate Reynolds Aluminum Outdoor Telephone Booths! For here's a practical, portable booth of *rustproof* aluminum designed to *attract* new business, *cut* maintenance costs. Aluminum never rots, cracks, splinters, warps or decays. Needs no paint for weather protection. Cleans easily. *And* cooler in summer, too . . . because aluminum reflects up to 95% of the sun's radiant heat!

Simple to install anywhere. Weighing only 360 lbs. erected, the Reynolds telephone booth can be assembled fast with unskilled labor. Bright, attractive, it is easy to locate night or day, provides more roominess and convenience than ordinary booths. A bright beacon when indoor locations are inaccessible at night or weekends and holidays, this handy booth stimulates *additional* paystation usage around the clock!

Follow the Trend to Outdoor Booths. Investigate this new source of *extra* revenue now. Here's new, frequent usage business over and above regular indoor paystation installations. Install attractive Reynolds telephone booths outside supermarkets, shopping centers, service stations, along the highway, at housing projects, airports and other busy traffic centers. Write for specifications and complete details. *Address: Reynolds Aluminum Fabricating Service, 2000 South Ninth Street, Louisville 1, Kentucky.*

The Finest Products Made with Aluminum are made with REYNOLDS ALUMINUM

BOOTHS FROM AUTOMAT



MAKE COIN BOXES JINGLE

Inside, outside, all around your town, these colorful, comfortable booths play a paystation tune that means increased revenue.

The new Alcoa Aluminum outdoor booth stands out in any environment—a constant reminder for people to call. The Burgess-Manning indoor booths take up a minimum of space, yet offer most of the advantages of booths twice their size. Both booths are easily kept sparkling clean, and give customers the privacy they prefer. They'll give *you* years of profit-producing service with minimum maintenance. Most important, they'll quickly pay for themselves, and start returning a maximum rate on your investment.

Automatic Electric offers you a wide selection of attractive booths for every location, available in a choice of colors and accessories. You'll find Paystation Booths in our new Cat. 9000; or, request Circular 1877 which also shows our complete line. Send your order for booths to your friendly Automatic Electric representative or your nearest A. E. Sales Corporation warehouse.

Automatic's 5 friendly warehouses:

George Ferguson, Mgr.	"Michie" Hester, Mgr.	Ed. J. Chok, Mgr.	Fran Batcher, Mgr.	Gene Martin, Mgr.
1033 W. Van Buren St.	2915 Moore St.	2360 N. W. Quimby St.	158 Corliss Avenue	2021 Main St.
Chicago 7, Ill.	Richmond 21, Va.	Portland 10, Ore.	Johnson City, N. Y.	Kansas City 8, Mo.
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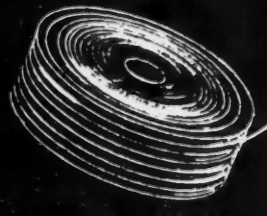
AUTOMATIC ELECTRIC

ORIGINATORS OF THE DIAL TELEPHONE

SPINNING WIRE
FOR EVERYNEED
STEEL
ALUMINUM
STAINLESS STEEL
COPPER
COPPERWELD
TO FIT ANY SPINNER

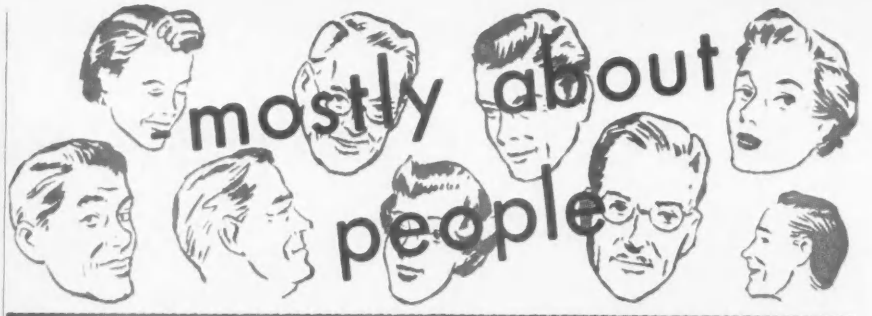


Please Write For Price & Description

CABLE SPINNING EQUIPMENT CO.
3100 TOPEKA AVE.
TOPEKA KANSAS

Serving the growing Independent telephone industry

OVERSEAS SALES:
Ericsson Corp. of New York
Automatic Electric of Canada
Pirelli of Great Britain



ACROSS THE EDITOR'S DESK

Mrs. Myrta L. Smith

MRS. MYRTA L. SMITH, 81, Austin, Texas, widow of the late *J. A. Smith*, publisher of this magazine from 1927-1940, died in an Austin, Texas, hospital March 10, following surgery.

Mrs. Smith was well known to the telephone industry through her travels with Mr. Smith. The Smiths visited all parts of the U. S. by motor, visiting with telephone people and chronicling their experiences in his "*Ramblings*" column.

Since 1940 when Mr. Smith passed on she has been living with her daughter *Mrs. Ina Heiple Leser* in Texas. Services were held in Austin and interment at Fort Worth, Texas.

Accounting Specialist

FRANK M. CLARK, 3969 Ruckle St., Indianapolis, Ind., head of a telephone accounting service specializing in Independent telephone companies, was a recent visitor at our offices. He and Mrs. Clark were visiting their children and calling on several of their accounts. Mr. Clark is specializing in auditing and accounting following his 30 years of experience in that type of work in all branches of telephone properties.

B. H. Piepmeier

VETERAN Independent, B. H. Piepmeier, for the past 15 years manager of the Community Telephone Co., Black River Falls, Wisc. retired last month after spending almost all of his business life in the telephone industry.

"*Piep*" has received many honors in his service to the industry and in his civic duties in the communities in which he was stationed. He is a past president of the Wisconsin State Telephone Association and we understand from *Ray Riordan*, secretary of that group that he will continue to reside in Wisconsin.

Mr. Piepmeier has always loved the telephone business and had the faculty of instilling this enthusiasm in the younger men serving under him. A number of the trainees of this fine gentleman have gone far in our industry.

Invitation From Alabama

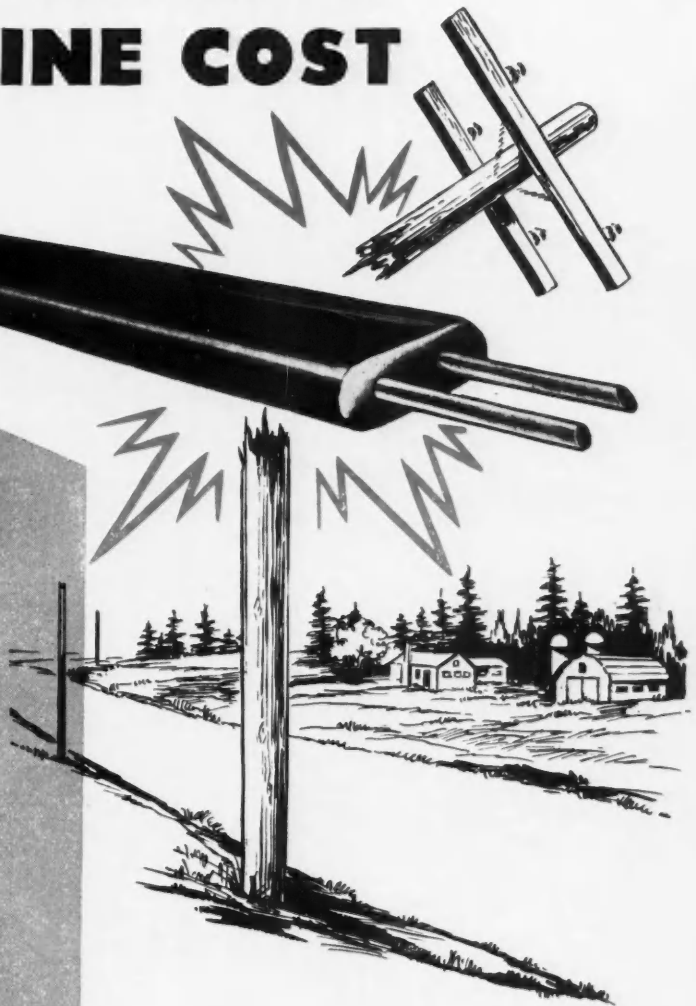
TO JEAN S. AUGUSTINE, president of the *Coosa Valley Telephone Co.*, Pell City, Ala., goes an Honorable Mention award on his unusual invitation to his recent cut-over party and dinner held March 15 in the Terrace of the Tutwiler-Dinkler Hotel, Birmingham, Ala. The invitation was a die-cut outline of a handset telephone with his invitation cleverly presented inside of the stand up replica of the telephone. Mr. Augustine is also boss man of the telephone company at Lexington, Va.

Verne B. Clark Dies

ALL OF the industry was saddened during March by the untimely death of *Verne B. Clark*, executive in charge of the Fort Dodge, Ia. exchange. Verne had been one of the hardest workers for the Independent industry and served on many committees of state and national telephone association duties.

Known for his good judgment and calm demeanor his sudden death in his sleep was very surprising to his associates and his friends. Besides his outstanding contribution to the Central Telephone Co. he will be particularly remembered by the industry for his services to the Advertising Committee of the United States Independent Telephone Association.

REX ONE PAIR CUTS POLE LINE COST



A Span lengths up to 600 feet are possible with Rex One Pair Distribution Wire. Extra service poles are eliminated on long extensions and long drop runs.

B Economically installed — no cross arms, pins, or glass insulators. Wire is simply installed on tangent supports and drive hooks.

C No tree leakage — a heavy extrusion of high molecular weight, high dielectric strength polyethylene, enclosing both conductors prevents accidental grounding and eliminates excessive right of way clearance.

D Excellent transmission characteristics — similar electrical properties to R.E.A. listed Rural Distribution Wire assure good subscriber service.

E Easily transposed — no special brackets; simply twist span at installation. Cross talk and induction noise are kept to a minimum.

F Ordering data: Two conductors #12 or #14 AWG Copperweld or .083 steel. 5,000 or 15,000 foot reels.

Other REX TELEPHONE PRODUCTS

EXCHANGE AREA CABLE
R.E.A. LISTED
DIRECT BURIAL CABLE
RURAL DISTRIBUTION WIRE
R.E.A. LISTED
URBAN DISTRIBUTION WIRE
'D' INSIDE WIRING CABLES

SEND FOR TECHNICAL SPECIFICATIONS and PRICES

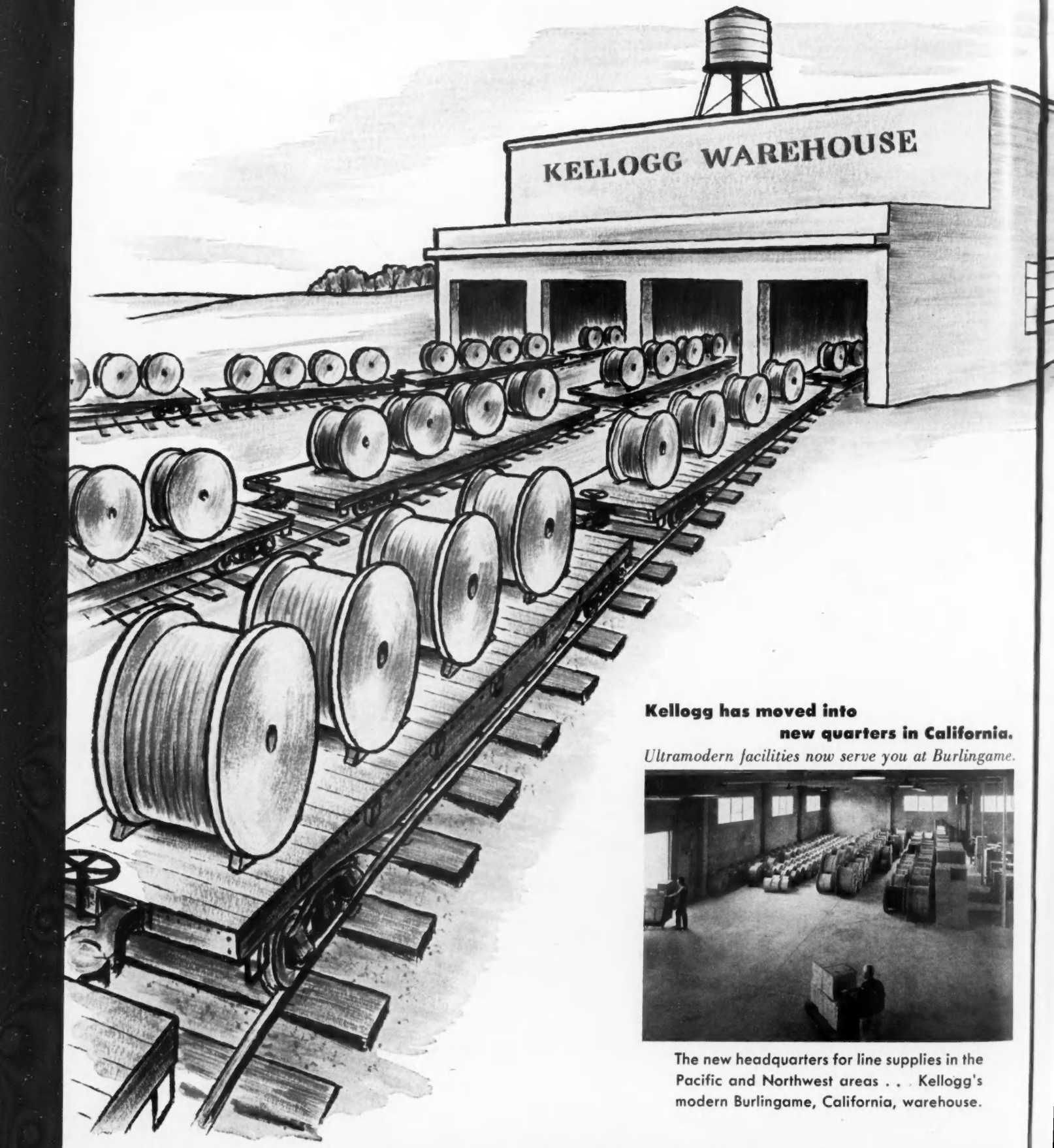
REX WIRE & CABLE

THE REX CORPORATION

INDEPENDENT

101 HAYWARD ROAD, WEST ACTON, MASS.

YES! NOW YOU CAN GET THE



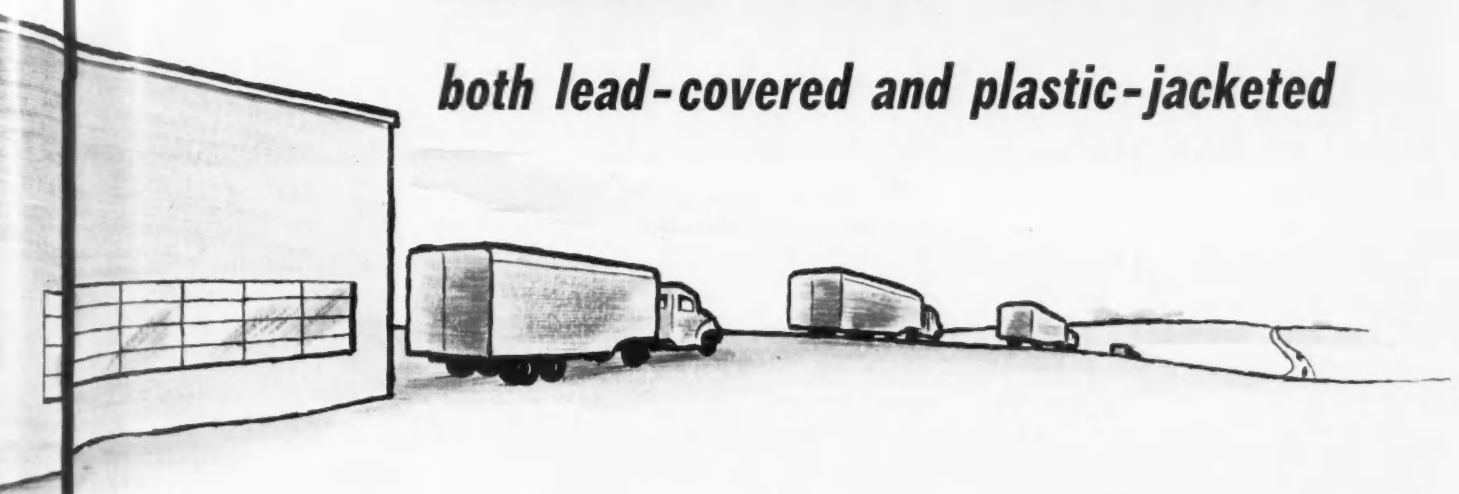
Kellogg has moved into new quarters in California.

Ultramodern facilities now serve you at Burlingame.

The new headquarters for line supplies in the Pacific and Northwest areas . . . Kellogg's modern Burlingame, California, warehouse.

E CABLE YOU WANT... WHEN YOU WANT IT

both lead-covered and plastic-jacketed



Now your local Kellogg warehouse offers lead-covered and plastic-jacketed cable in a complete range of sizes and specifications . . . many of them in stock and ready for immediate delivery.

Kellogg has had 60 years of experience in bringing line supplies to the independent telephone industry. When you order from Kellogg you know your order will be handled by an experienced telephone expert.

KELLOGG
A DIVISION OF I T & T

KELLOGG SWITCHBOARD AND SUPPLY COMPANY
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Washington NEWSLETTER

REA's New Equity Requirements

THE RURAL Electrification Administration is putting into effect liberalized equity and security requirements for REA farm telephone loans which will make it easier for borrowers, particularly cooperatives, to meet equity requirements of the federal agency, but will still provide adequate loan security, according to REA officials.

Underlying philosophy behind the substantial liberalization of co-ops' equity requirements is believed to be the viewpoint that existing telephone organizations have had sufficient time to become acquainted with the REA telephone program, and that if they do not wish to enter areas where REA loans are feasible, the new policy will make formation of a co-op more practicable.

For commercial companies, the new policy sets up a flat equity requirement of 10% of the assets of the company after inclusion of the REA loan. The equity may be in the form of cash, provided by available funds or through the sale of securities, or in the form of existing assets, such as the value of existing plant as appraised by REA. Heretofore, equity requirements for commercial companies have ranged from 10 to 15%, varying on a case-by-case basis.

It is pointed out, apart from the 10% equity requirement, that where acquisitions are involved, if the borrower plans to pay more for the property than the REA appraised value, he will have to pay the overage from his own funds, not from the REA loan money.

Where the borrower is having difficulty selling securities, but has raised at least 50% of the required new equity funds, advances of REA money will be permitted if the borrowers accept additional managerial controls in their mortgages where their equity is less than 10%. The supplemental controls customarily would consist of a requirement that the borrower not pay any dividends or salary increases, or disburse surplus or extra funds in any other manner, until the equity available gets up to the 10% mark.

Present borrowers — those which have already entered into loan contracts — who have raised at least 50% of required equity funds may obtain loan advances if they accept the supplemental mortgage containing dividend restrictions and other managerial controls.

Under the new policy, co-op borrowers will be required, prior to the loan, to have existing subscribers and signed applicants for service totaling at least 70% of the five year subscriber estimate worked out in connection with area coverage and system layout plans. No equity will be required for existing subscribers, but the co-ops must collect $10 from each signed applicant who does not now have telephone service.

Present policy calls for provision of $50 equity for each new subscriber for co-op service, and $25 equity for each existing subscriber.

Under the new policy, for all new and supplemental loans for co-ops, the mortgage will include managerial controls and restrictions or any distribution of net worth if, after the distribution, the net worth would be less than 10% of assets.

Present borrowers — those with loan contracts — may either request waiver of the requirement of raising the remaining equity, accepting the supplemental mortgage provisions, or request approval of a time payment plan of raising the remaining equity. This applies principally to co-ops with existing systems which are having difficulty signing up additional customers because of the equity requirements.

Accelerated Depreciation

EXTENSIVE comments on both sides of the Federal Communications Commission's proposed rule recognizing the use of accelerated depreciation in the Commission's uniform system of accounts for Class A and B telephone companies were submitted before the March 15 deadline for submission of comments on the rule change proposed by the General Telephone Corp.

Both the American Telephone & Telegraph Co. and the United States Independent Telephone Association supported the proposal, along with the Western Union Telegraph Co., while opposing it were the Communications Workers of America, the Pennsylvania Public Utility Commission and the Wisconsin Public Service Commission.

General, as the leading advocate of recognition of accelerated depreciation in the FCC's accounting system, declared that to argue that the method is a tax saving "is to say that the whole is greater than the sum of its parts . . . Sound accounting principles require a company to record all liabilities as they are incurred, and to do this with respect to accelerated depreciation for

AUTOMATIC ELECTRIC — LEADERS IN CARRIER COMMUNICATION — LENKURT

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Lenkurt's "carrier interconnection" concept—foundation of the 45 "universal" class of carrier systems—provides interconnection *at carrier frequencies*. Open-wire, cable, and radio systems can all be joined in one network, without expensive back-to-back equipment arrangements normally necessary.

Lenkurt Type 45A carrier also offers these advantages:

- *proves in over distances less than 15 miles in competition with new open-wire construction*
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If you need high-frequency carrier, investigate Lenkurt Type 45A open-wire carrier. Write today for complete information. *Address:* Automatic Electric Sales Corporation, 1033 West Van Buren St. (HAymarket 1-4300), Chicago 7, Illinois. *In Canada:* Automatic Electric Sales (Canada) Ltd., Toronto. *Offices in principal cities.*

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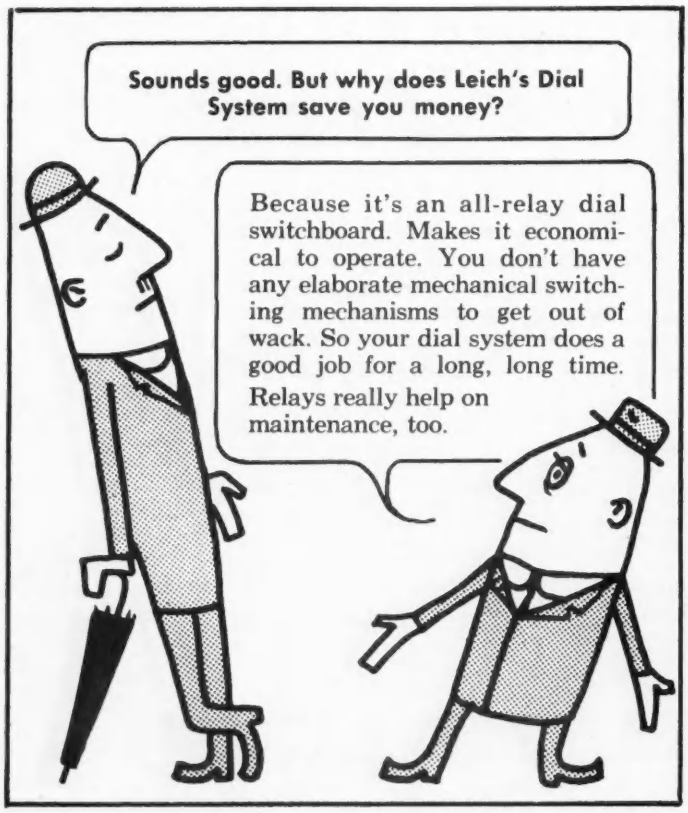
Originators of the dial telephone • Pioneers in automatic control

GENERAL SYSTEM INDEPENDENT


Sounds good. But why does Leich's Dial System save you money?
Because it's an all-relay dial switchboard. Makes it economical to operate. You don't have any elaborate mechanical switching mechanisms to get out of wack. So your dial system does a good job for a long, long time.
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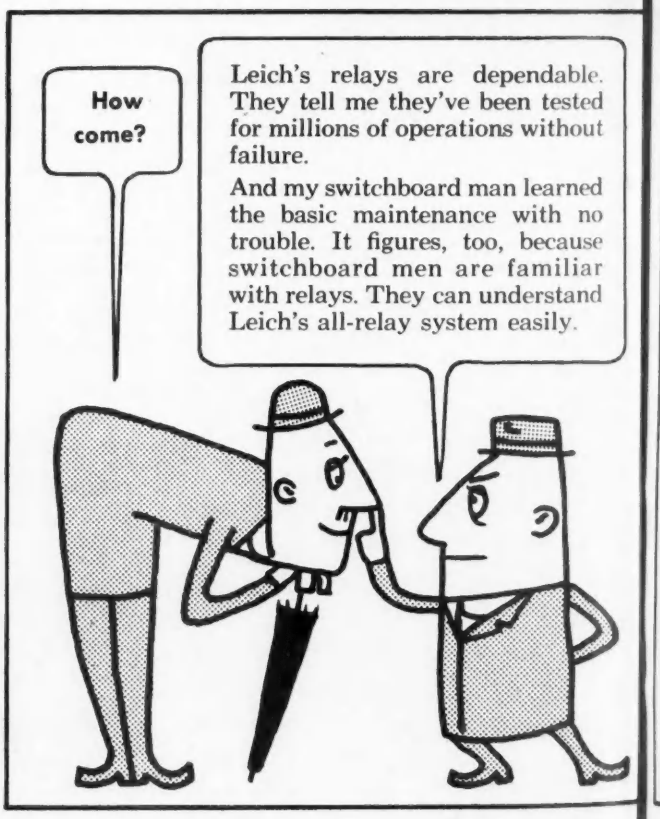
How come?
Leich's relays are dependable. They tell me they've been tested for millions of operations without failure.
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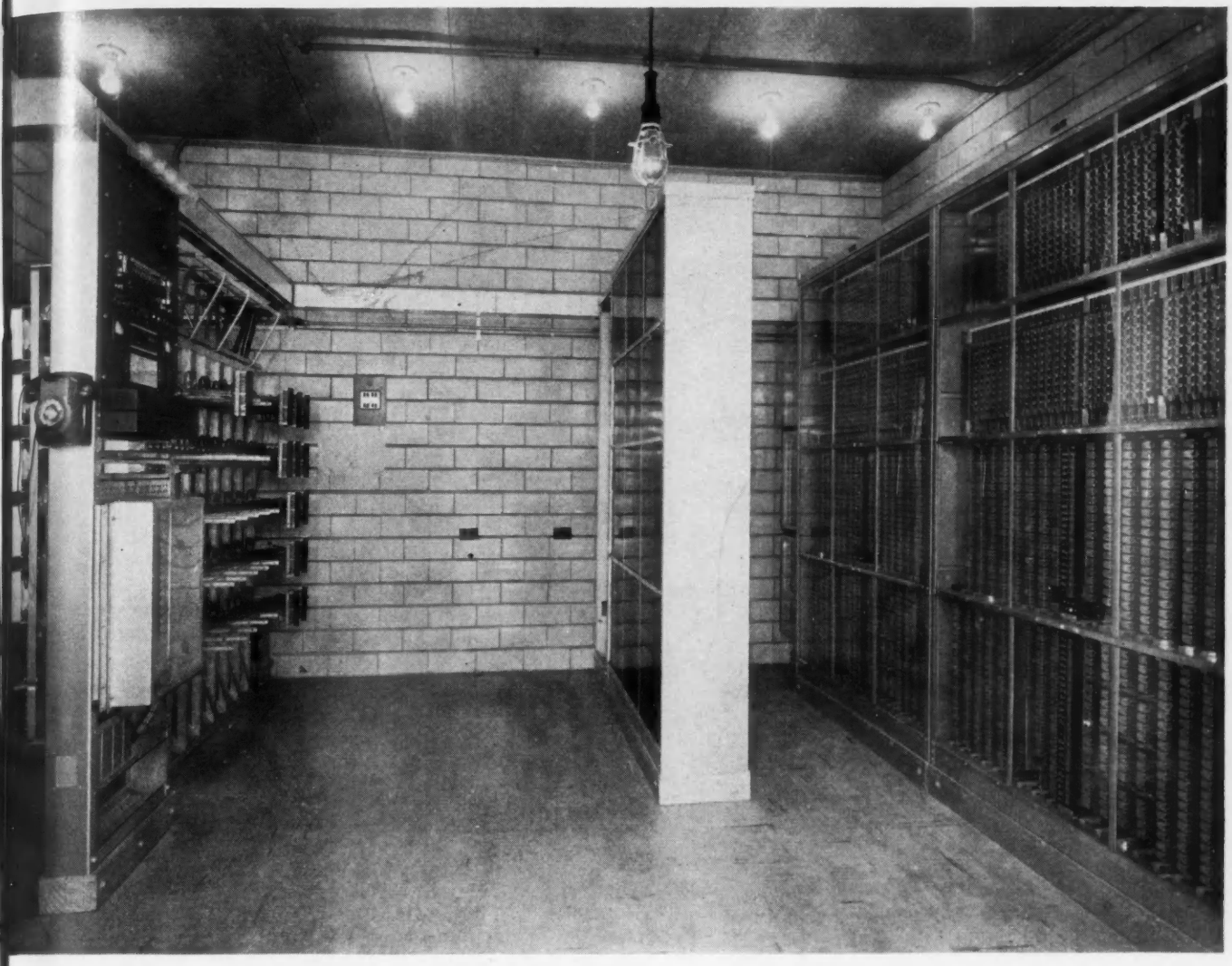
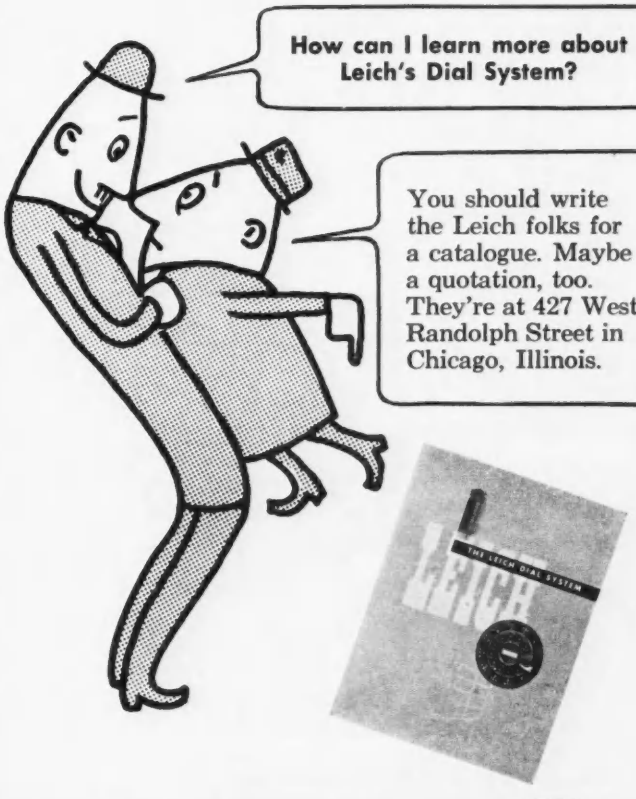


What about expansion?
No problem there. Your own switchboard man can jack-in ten lines in 15 seconds. Line finder switches, connector switches, and selector switches can also be jacked-in.
So you don't have to pay for factory installers, soldering, and wiring. The only expense is the cost of the equipment you add. Leich gives you a fair price, too.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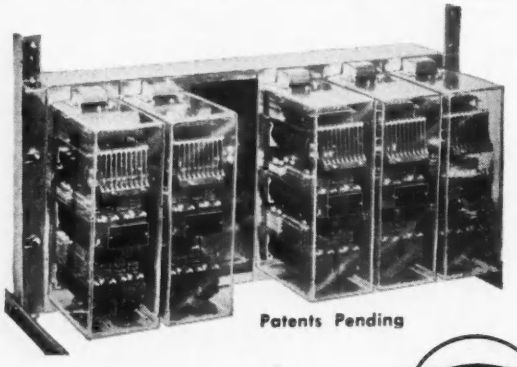

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For converting switchboards into full 2-5 numbering.

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Washington

(Concluded from page 18)

tax purposes, the company must 'normalize' its annual income tax expense by charging to each year's operations the income tax liability arising therefrom, whether that liability is due currently or at some future date."

General Telephone took the position in its filing that "To contend that liberalized depreciation for utilities results in an actual tax savings is to deny to one segment of the economy through regulation the benefits intended by Congress for all."

AT&T, in its supporting statement, declared that "deferred tax treatment recognizes the future tax liability that is created by shifting depreciation deductions from future years into the current year" and that the plan "enables the public utilities to obtain the benefits intended by Congress for all corporations." AT&T said the rule change also would give "protection against the possibility that the internal revenue code may at some time no longer permit accelerated depreciation deductions."

Minimum Wage

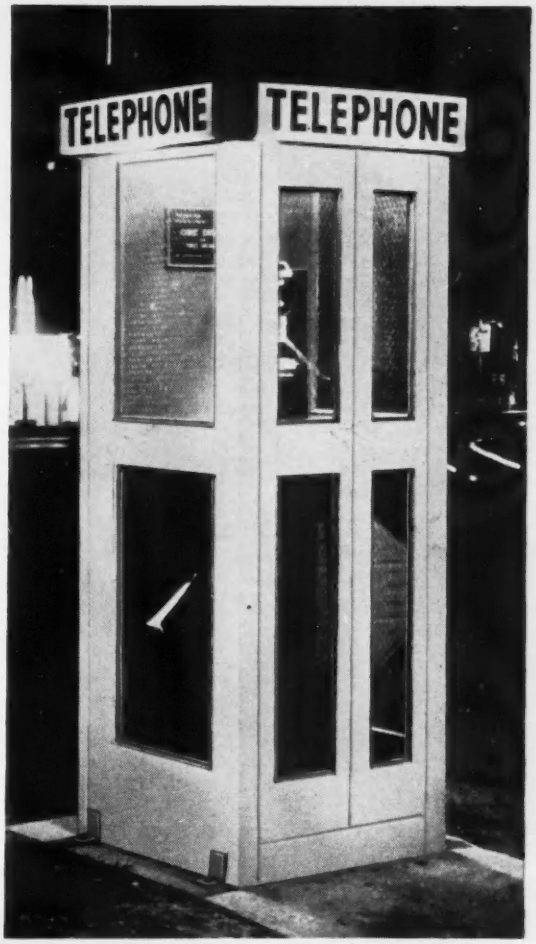
IN THE hearings now being held by both Senate and House Labor subcommittees on proposed changes in the minimum wage law to broaden its coverage, the CWA's President Beirne, in an appearance before the Senate group, urged that Congress end the "unfair and discriminatory" section of the Fair Labor Standards Act which exempts telephone operators in exchanges of fewer than 750 stations from minimum wage provisions.

Mr. Beirne's view that the exemption means, in effect, that affected operators "subsidize communities to assure them of telephone service," was shared by Sen. Wayne Morse (D., Ore.), who presided at the hearing when the CWA official testified. Senator Morse, voicing his opposition to exemptions generally as "politically immoral," said that "farmers have no right to expect telephone operators to subsidize them" by making possible "lower rates because of lower wages."

Arguing against the position that to end the exemption could have serious economic effects on small telephone companies, Mr. Bierne said: "The telephone industry is basically a monoply public utility service industry. Its rates, as well as its profits, are fixed by state and federal regulatory commissions. These companies, with approval, can charge whatever rates are necessary to insure a fair return. Changing the law could not seriously affect their profits or endanger their competitive position, since no competition exists. It would only put an end to subsidy of this service and industry by these women telephone workers.

"If there is justification for exempting some industries which are competitive, and we think not, it certainly does not apply to a regulated industry such as telephone. The telephone companies are literally guaranteed a profit."

4 ways to tell a telephone with GEECO lighted signs



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. . when you answer the question "Where's the phone?" with a colorful identifying sign that is an attractive addition to any installation.

1 PROTECTING IDENTITY FOR THE OUTDOOR BOOTH: COMBINATION LIGHT AND SIGN

Provides a pool of light around the outdoor booth that makes the area more inviting . . . offers protection to your patrons . . . adequate light to use the directory and dial the instrument. Installed as required, depending on booth location.

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Finishes available in plated Satin Copper or Brass or four colors of Hammered Baked enamel. Faces in one of seven different background colors with white lettering. Colored lamps in tinted or shaded effects. Easily installed. Direction arrows. A versatile and eye-catching sign.

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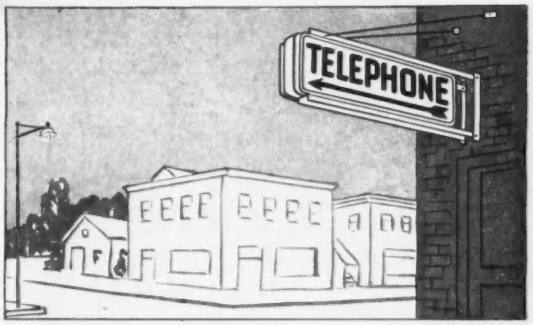
Dimensional directional sign blends beautifully with modern surroundings. Made of satin chrome finish and colored Plexiglas panels with raised letters in contrasting hues. Tints and shaded effects. Lighted with 15 watt' fluorescent lamp. Variety of color combinations and directional layouts.



4 POINT THE WAY TO A REMOTE LOCATION: THE T-240 SIGN:

A directional sign to point out an outdoor booth, or for use indoors where larger sign is desirable. Plexiglas face is lighted with slimline fluorescent lamps, and body of sign is of lifetime aluminum. Easily mounted.

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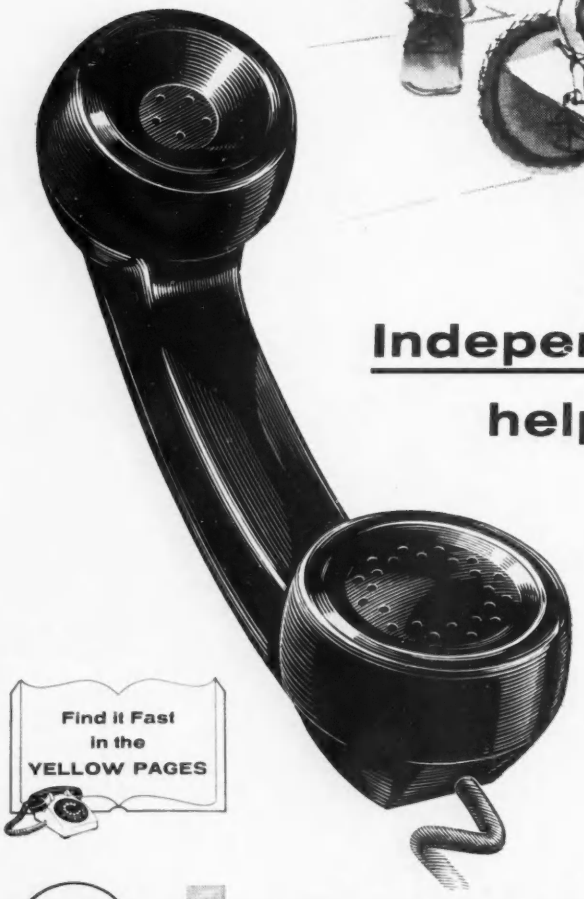

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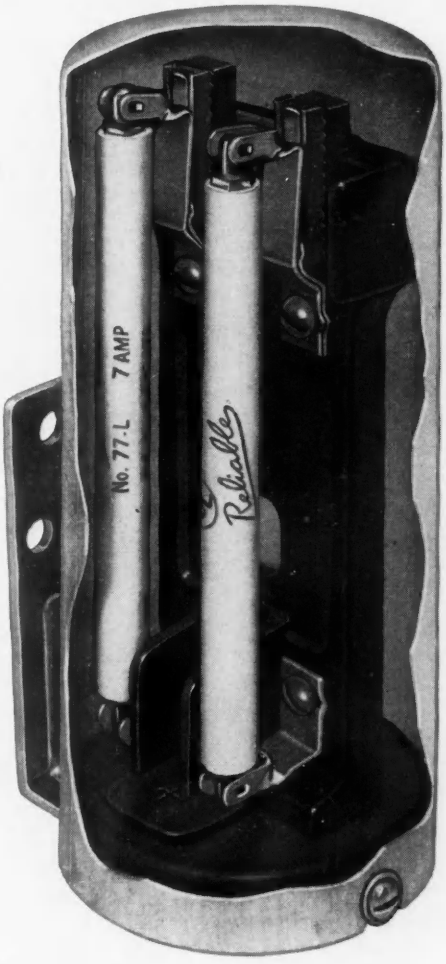

The flexible neoprene base has integral wire entrance sealing slots and, with its tapered design, closes the cover so snugly that it is truly weather-tight and insect tight.

Station Protection–A New Design

Only the fuses and the discharge blocks remain unchanged–performance and dependability continues as before. There is a phenolic fuse mount, rather than porcelain–a flexible neoprene base with integral wire entrance sealing slots instead of open wire holes–a fuse mount and terminal post redesign that puts the wiring snugly in place without removing fuses–a fuse mount that can be easily reversed to wire from right or left. All metal parts are either bronze, aluminum or stainless steel.

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SAFETY CORNER

Safe Motor Vehicle Operation

(*Concluded from page 20 of the March 1, 1957, isue of TE&M.*)

(E) *Always expect an unprotected intersection* to be loaded with accident hazards: so slow down as you approach it.

(F) *When meeting other cars,* if the other fellow moves out of his lane, blow your horn, slow down, and give him plenty of room. Remember, he may be asleep at the wheel, ill, drunk or just plain reckless.

(G) *Avoid following cars too closely.* With the increased traffic on our roads today, more and more drivers are being involved in rear end collisions. Keep a safe distance between your car and the car ahead of you. Give the car behind plenty of warning.

(H) *Drivers of parked cars often pull from curbs without signalling.* Take an extra close look at those vehicles parked diagonally, backing out of driveways, or coming out of parking lots, because they might back right out into traffic. Exhaust fumes from a parked car or seeing a person getting into a parked vehicle should be warnings to you.

(I) *Pedestrians are supposed to cross the street only at intersections,* but you can't count on it. Expect them to cross in the middle of the block or from behind parked cars, because we know they often do, and since youngsters are so unpredictable, slow down when you approach school zones, playgrounds, or any gathering of children on the street. It's a good idea to consider every child on a bicycle in the street as a human caution sign.

We know that driver attitudes are a major cause of accidents. As motor vehicle operators, we must develop the attitude that we will not allow ourselves to become involved in an accident situation or trap. Let's take the time to be safe — *It's time well spent. Don't gamble a lifetime to save a second. Make it a sure bet by driving defensively.* — *New Jersey Bell.*

Watch Your Distance

IT'S EASY to get into the bad habit of following too closely the car ahead. If you're an average driver, tests show that you think you can stop your car in a much shorter distance than is actually possible.

When the driver up ahead for some reason slows down suddenly, be sure that you have the time and space needed to prevent bumping into him.

"THE WAR on traffic accidents is going against us, and the last year has brought severe reverses . . ."—National Safety Council.

Allow at least 1 car length for every 10 miles of speed — more if the pavement is wet or if you are driving after dark.

Because it is hard to judge distances correctly, give yourself more space to stop than you really think you need.

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tightening guys and doing hundreds of lifting, pulling and binding jobs safely and efficiently

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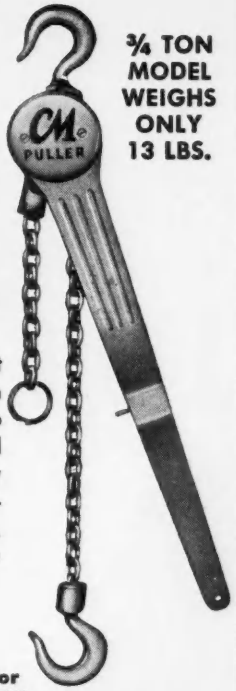

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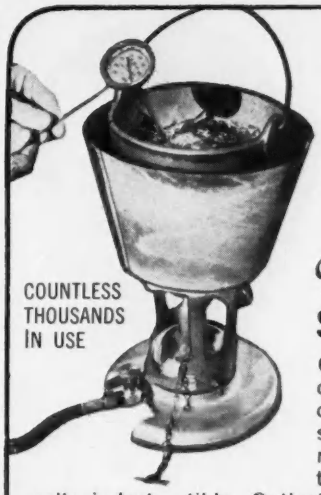

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Satisfied owners in the telephone and utility fields specify Dillon Temperometers as **standard** equipment. Shipment is from stock at the factory or orders may be placed with leading jobbers. Illustrated bulletin upon request. No obligation!

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- No doors — always fresh air
- No Corners — to sweep
- No glass — to break

There's a model and size to fully satisfy your particular need. No other Booths like the Burgess-Manning.

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Now you can preserve and protect your

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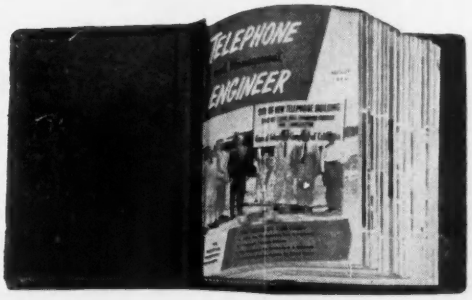

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The one-piece, upright design makes it lighter, more compact for space-saving efficiency, and puts the dial in the bottom for greatest dialing ease — only in the Ericofon do you have "dial-comes-to-you" convenience.

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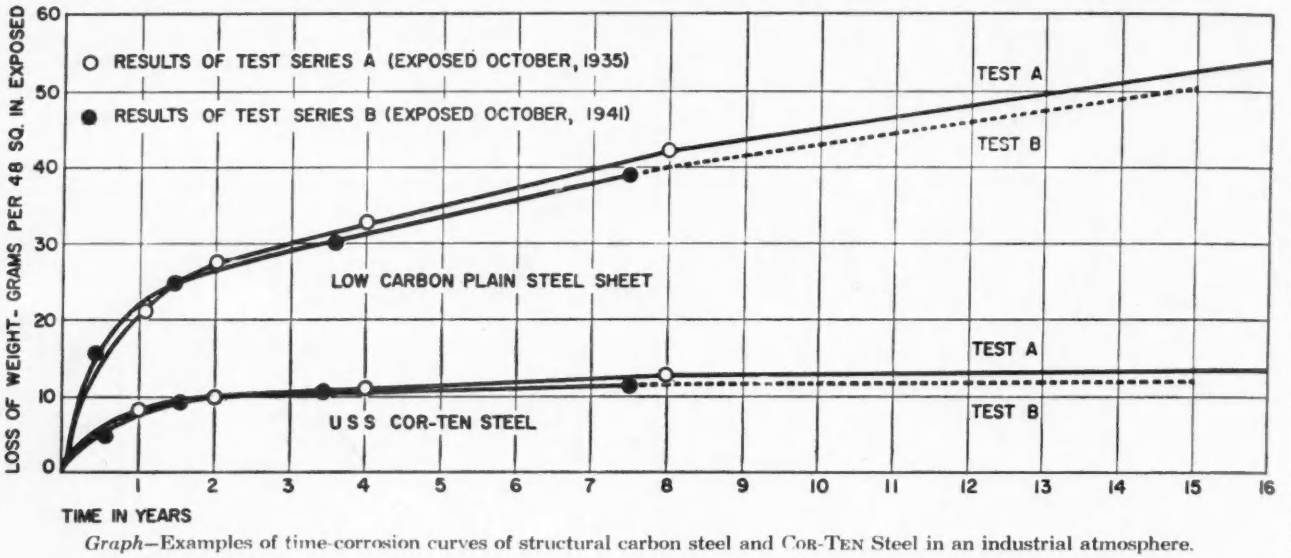
This chart shows time-corrosion curves of two separate tests. During the last 8 years of test A, begun in 1935, the carbon steel corroded at least 8 times more than the COR-TEN Steel. Note that test B, begun in 1941 at the same industrial location, follows almost the exact curve of the earlier test. Other test data warrant extrapolation of test B to 16 years based on the straight line corrosion typical of COR-TEN Steel.



Graph—Examples of time-corrosion curves of structural carbon steel and COR-TEN Steel in an industrial atmosphere.

How Atmospheric Corrosion-Resistant USS COR-TEN Steel Cuts Replacement Cost of Pole Line Hardware

- COR-TEN Steel's Atmospheric Corrosion Resistance is 4 to 6 times that of carbon steel.

- Anticipated Life of COR-TEN Steel Pole Line Hardware is equal to life of a treated pole.

To understand why and how USS COR-TEN Steel cuts pole line hardware replacement costs, you need only consider why pole line hardware needs replacement at all. Conventional hardware made of galvanized carbon steel has adequate strength to begin with. However, when the protective coating is gone, the base metal beneath is exposed to the elements. Gradually, through the ravages of atmospheric corrosion, the hardware literally *loses weight*—and therefore *strength*—to the point of physical failure. How long it will retain sufficient strength to do its job safely depends, of course, upon the atmospheric conditions in the locality. Deterioration will normally be more rapid in a marine or industrial atmosphere than in a rural area. All too often, hardware must be replaced while the treated pole supporting it is still good for many more years of service.

The answer to this problem is obvious—find an *economical* material that has greater resistance to corrosion. That material is available in USS COR-TEN High-Strength Low-Alloy Steel. Not only does it have greater strength than carbon steel, but because of its superior resistance to atmospheric corrosion, COR-TEN Steel Pole Line Hardware should last as long as the treated pole that supports it.

Atmospheric Corrosion Resistance

While its greater strength—50% high yield point—is a definite asset, USS COR-TEN's greatest advantage over carbon steel in hardware applications is its superior resistance to atmospheric corrosion—4 to 6 times that of carbon steel. The reason? Simply this: when first subjected to the elements, COR-TEN Steel forms a smooth, *tightly adhering* coat of oxide scale. This coating, unlike that on carbon steel, clings so tightly to the metal that it tends to shut out the elements, acting as a barrier against progressive attack on the steel beneath and effectively slowing down further corrosion.

A New Practice

Hardware made with COR-TEN Steel is a relatively new idea. Frankly, it will be several years before the convictions of the first users of COR-TEN Steel hardware will be borne out. However, USS COR-TEN Steel in dozens of other applications time and again has proved its far superior resistance to atmospheric corrosion. COR-TEN Steel railway hopper cars, in addition to constant exposure—as in the case of pole line hardware—are subjected to the pounding and abrasion of millions of tons of coal and coke. Under these conditions, far more severe than pole line hardware has to face, COR-TEN Steel cars are still in service after more than twenty years of continuous use.

That is why we firmly believe that with USS COR-TEN High-Strength Steel, you will be able to install hardware on a new, pressure-creosoted pole and erase the entire installation from your maintenance budget for as long as the pole is in service. The savings on such superior service we leave to your own slide rule.

Although United States Steel is not a manufacturer of pole line hardware, we produce USS COR-TEN *for* hardware. If you would like the names of companies making hardware with USS COR-TEN Steel, or if you would like additional information on corrosion-resistant hardware, we will gladly send our book, *"USS COR-TEN Steel Pole Line Hardware."* Just write to United States Steel, Room 2801, 525 William Penn Place, Pittsburgh 30, Pa.

EDITORIAL

"Good Precedent From Indiana"

SOME GOOD news came from Indiana a few weeks back. It arrived in the form of a decision by the Indiana Public Service Commission which properly recognizes the effects of inflation in regulating utility depreciation accounting.

The precedent-setting decision came about when by a unanimous verdict, the Indiana regulatory body permitted Indiana Telephone Corp. to consider rising property replacement costs in determining expenses for rate-making purposes, thereby becoming the first state regulatory commission to take such a realistic approach.

Of course, we hope other commissions will follow Indiana's lead, now that the ice has been broken.

In many previous editorials we've had our say on the subject of depreciation accounting, pointing out that rising prices have increased the disparity between the original cost of a plant or piece of equipment and the cost of replacing it when it is used up.

Right along with telephone industry members we have long recognized the facts about the so-called "*depreciation mess.*"

In the telephone field the effects of "the mess" are far-reaching. Rates charged for service are determined by combining all costs and adding a fair return. Thus, if rising prices mean the telephone company is under-depreciating its assets, they also mean that its costs are understated and the return it is allowed is also lower than it should be.

That's why we believe the Indiana decision should be encouraging to telephone companies.

It seems to us there is considerable logic behind the argument that a telephone company should be entitled to consider replacement costs in determining its annual depreciation charges.

It has been proved time and time again that if a company is allowed to depreciate its assets only on the basis of *original costs, the reserve built up during the life of the property will not be large enough to pay for replacing that asset when it is used up, if prices are rising.*

In active operation this procedure starts a vicious cycle, made up of these three trouble makers:—

(1) Since its subscribers must pay for depreciation expenses as well as all other costs through rates the commission allows, the under-depreciation that results from requiring the utility to consider only original costs means the customer does not pay the full economic cost of the services he is receiving.

(2) Therefore, when the asset must be replaced, the company is forced to go out and raise more capital to supplement the funds in the depreciation reserve simply because the customer was not made to pay the full cost of the services used up in his behalf.

(3) The owners of the company depreciating on original cost must constantly borrow more or sell more stock and spread their ownership thinner merely to maintain the same amount of plant.

It seems to us that allowing replacement cost to substitute for original cost in determining charges would end this injustice and place the full cost of replacing the assets where it belongs: *on the customer who benefited from the use.*

That's why we believe the Indiana decision may bolster the telephone industry's attempt to return to the use of replacement cost of their plant as the basis for determining their rate of return.

We well realize that a return based on replacement cost can turn into a two-edged sword. In a period of declining prices, allowing replacement cost in utility regulation would mean that stockholders get a lower return on property built when prices were higher than they would if original cost criteria were kept.

Evidently the utilities are willing to have this cyclical approach to their profits replace regulation that tries to keep their return stable in terms of dollars irrespective of price movements.

It should be hoped that other commissions will accept this more flexible arrangement, so that the regulated industries no longer will be forced to "buck the business cycle."

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New components in D-Series Dial make operation smoother and easier for your subscribers

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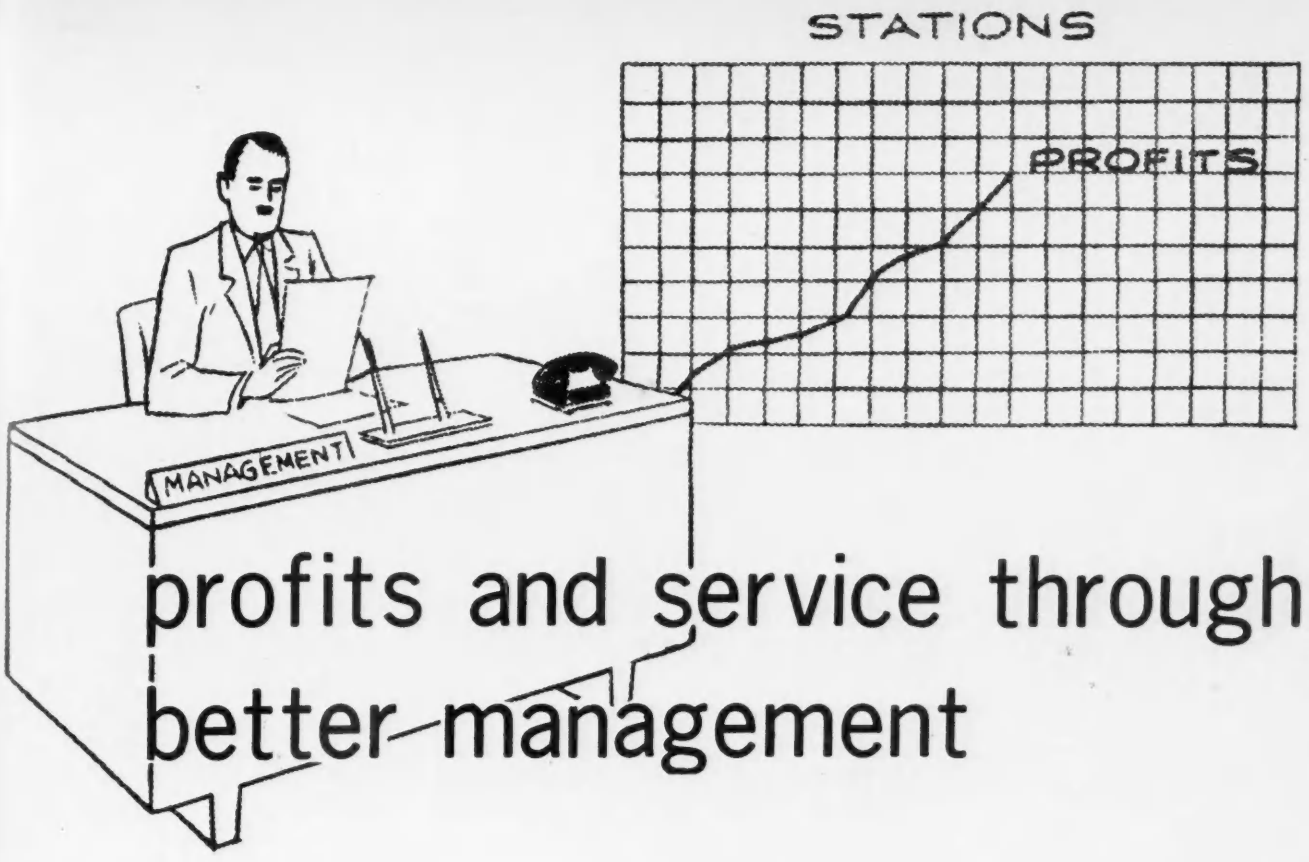


profits and service through better management

By JAMES L. MORRISON*

CHAPTER FIVE of Mr. Morrison's article discusses proper employe direction and points out that the function of direction is the job of molding, men, money and material into a living organization. Chapter Four appeared in the March 15 issue of TELEPHONE ENGINEER & MANAGEMENT.

Directing Employe Effort

ALTHOUGH it is difficult to assign paramount importance to any one function of management, the focus of modern day opinion is rapidly centering on the function of employe direction. It is this area which is the very essence of management. A manager must mold his organization into an enthusiastic and efficient team. The final test of his success is his ability to elicit the full abilities and enthusiasm of all employes.

The function of direction may be simply stated as the job of molding men, money and material into a living organization, a dynamic entity. If management is successful the result will be employe job interest, vigorous action, creativeness and efficient teamwork.

In the fifty years since Frederick W. Taylor pioneered the concept of scientific management, American industry has made great strides in "controlling the work situation." It is only in recent years, however, that substantial attention has been focused upon directing employe effort for maximum productivity. It is in this field that a great challenge for the future is presented.

The development of a dynamic, vigorous organization does not depend upon any set formula. An approach that succeeds in one company may fail in another. Management must be prepared to experiment for, in the last analysis, the development of efficient teamwork is largely dependent upon personal leadership.

Leadership

LEADERSHIP is a quality inherent in everyone. At one time or another we have all assumed the role of a leader, be it on the job or off. In some people, leadership comes naturally while in others it must be developed.

Leadership presupposes certain abilities which might be grouped in five categories:

(1) *A leader knows what needs to be done.* He knows where he is going. In order to accomplish his objective he must fully understand the problem or situation. He will listen and observe carefully and will not hesitate to ask questions when pertinent.

(2) *A leader plans his approach.* He develops his plan with employe assistance whenever possible, and marshalls the resources he needs to reach his objective.

(3) *A leader delegates responsibility.* He determines how much work should be delegated and to whom. He fully explains assignments to each individual and delegates adequate authority to complete the task. He furn-

*Director of general information, West Coast Tel. Co., Everett, Wash.

ishes guidance in order that the employe may successfully complete his task.

(4) *A leader makes decisions.* He respects and profits from experience. Once made he sticks to his decisions but does not hesitate to correct himself if he has made a mistake. He learns to make decisions promptly and accepts full responsibility for their consequences.

(5) *A leader is a trainer.* He shows his workers how to do a job so they can develop maximum skill. He expects a "best effort" from everyone and assists his workers in developing themselves for increased responsibilities.

Leadership also presupposes certain personal characteristics:

(1) *A leader is resourceful.* He can be depended upon to "find a way" to do the job. He continually seeks to improve his own skills and knows both the abilities and limitations of his workers. He is restless in the sense that he constantly seeks new and better ways for doing things. He does not hesitate to seek advice.

"LEADERSHIP is a quality inherent in everyone. In some people leadership comes naturally while in others it must be developed."—S. W. Bell Photo.

(2) *A leader can be depended upon.* He has integrity. Both his workers and his supervisors respect him as being honest and impartial. He is fair in his dealings with people and he keeps his promises.

(3) *A leader is patient.* He understands that workers are not all equally competent and he gives everyone a fair chance. He doesn't jump to conclusions and he takes the time necessary to do a thorough job.

(4) *A leader is courteous.* He treats everyone with respect and understands that the other fellow also has feelings. He solicits cooperation rather than issuing orders.

(5) *A leader is loyal.* He stands by his workers and does not "pass the buck." He is most interested in the good points in people and not their faults.

An effective leader will constantly seek to develop and improve these abilities and characteristics. If he does this conscientiously success will seldom escape his reach.

Human Relations

THE STUDY and practice of human relations in industry as a distinct field is relatively new. The subject itself, however, is quite ancient and its most devoted practitioner was the man from Galilee.

Human relations concerns itself with the understanding of what makes people "tick," the "how and why" they act as they do. Once human attitudes, desires, motivations and fears are fully understood it becomes easier to work with people, to secure maximum cooperation, and to assist them in realizing their full potential.

In our daily contact with people we display one of three reactions toward them. We like them, we dislike them, or we are indifferent toward them. The things that we say and do, intentionally or otherwise, can have a profound effect on the attitude and feelings of others. Most of us have a great deal of pride; we are sensitive and our feelings are easily hurt.

All human behavior has a cause. Frequently our feelings are hurt because someone was careless. Oftentimes this stems from a lack of consideration. It manifests itself as arrogance, ridicule, and just plain indifference.

Anger and loss of temper often result in unpleasantness. Its cause may stem from emotional instability, a rundown physical condition, and frustrations that build up in everyone. Personal characteristics can also cause unpleasant relationships. Bad habits, personal appearance and manner of speech may produce antagonisms.

These, and a great many other factors can and do produce unsatisfactory job relationships which in turn have a direct effect upon employe attitudes, morale and productivity.

An adequate study of human relations is beyond the scope of this installment. Its importance, however, cannot be minimized. It is suggested that the following books will provide a more thorough study of human relations: "Human Relations Case Book," by Francis S. and Charles A. Drake, McGraw-Hill Publishing Co., 1947; "Techniques of Handling People," by Donald and Eleanor Laird. If you want to know more about this book write TE&M's managing editor.

Employe Training

EMPLOYES cannot be expected to develop their full potential and produce at full capacity unless they have been properly trained and thereafter receive adequate day to day instruction.

Proper training involves at least four steps:

(1) *First see that the employe is receptive,* that he has a favorable attitude for training. Receptiveness can frequently be obtained if the worker is told in a natural, friendly manner just what he is to do. Explain his responsibilities in terms of their relationship to the total job and encourage him to ask questions.

(2) *The next step, depending upon the nature of the assignment, is to tell the employe what you are going to do, and then show him how to do it.* Take the job step by step and perform just as you want him to perform. Repeat the process if you think it necessary. Encourage his suggestions because his ideas may point

to a better or more economical way to do the job. Ask him questions to be certain that he understands.

(3) *The next step is to have the worker perform the task just as you did it.* Watch him to be certain that he does the job just as you want it done. If he makes a mistake correct him in a friendly manner and give him encouragement. Have him tell you what he is doing step by step so that he establishes the proper sequence in his mind. Be patient and have him repeat the performance until you are confident he knows how to do it.

(4) *The final step is to put the employe at work.* Tell him how to get assistance if he runs into trouble. Check back occasionally to see how he is getting along. If he is doing the job wrong, correct him, and if he is making progress, tell him so.

Experienced employes can be expected to grasp the job more quickly, but in most cases the above procedure will help to assure satisfactory results.

Do not be in a hurry when explaining a new task and do not assume that the employe knows what you want. He can't read your mind. He can be expected to perform satisfactorily only if he fully understands what he is to do and how he is to do it.

In many locations a large part of a manager's or supervisor's day is spent in directing employe activity in ordinary situations. The object of this supervision is not only to have the job done, but also to instill in the employe the desire to do it well. There is a direct relationship between the degree of employe willingness to perform satisfactorily and the amount of supervision needed.

A willingness to perform satisfactorily can usually be achieved if orders are given, whenever possible, in the form of requests or suggestions rather than as commands. Be certain, however, that the employe understands action is to be taken. Avoid veiling orders as suggestions in such a way that the employe believes he is to exercise his own discretion in taking action.

Instructions should be given clearly and employe questions should not be avoided. The willingness to perform will be improved if the employe understands why the task is important.

Employes should be encouraged to improve themselves. The manager or supervisor should always set a good example not only in quality of performance but also in willingness to learn. A "know-it-all" attitude is not conducive to good supervision. Employes should understand that their best effort is expected at all times and good work should be acknowledged promptly. They should be encouraged to pursue outside study and research and their abilities can be developed more rapidly if their assignments are varied as much as possible. Special assignments from time to time will provide excellent training and improve morale.

Employe Participation

MOST HUMAN beings have a strong sense of participation. We like to feel that we "belong." When people identify themselves with an organization they tend to put forward their best efforts in behalf of that organization.

A manager who encourages and assists employes to fully develop a sense of participation will gain their loyalty and enthusiasm. Every effort should be made to keep all employes fully informed. Employe opinions should be solicited. Frequently those opinions will be valuable. Employe meetings at which both progress and problems are discussed will help workers identify themselves and their best interests with the company.

Making Decisions

THE PROCESS of directing contemplates the making of decisions and the issuance of instructions. Decisions should be reached as promptly as possible. Nothing tends to paralyze an organization faster than a climate in which decisions are delayed and avoided. Whenever possible decisions should be explained to employes. They tend to resent what may appear to them as an arbitrary decision.

If employes are to develop and progress with the company they must learn to make decisions. They should be given this opportunity whenever possible.

Group Relationships

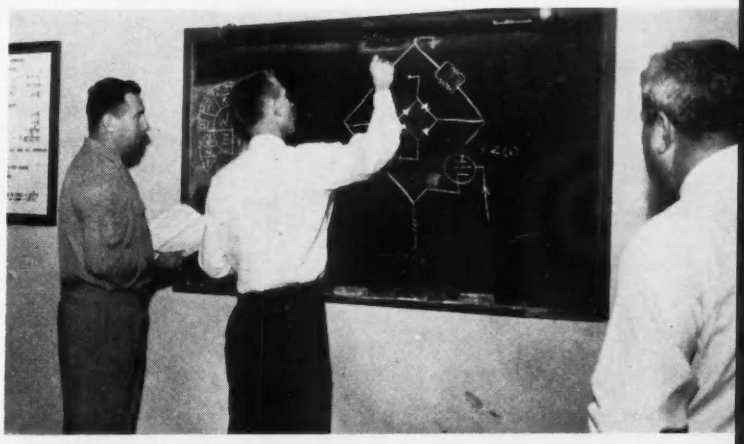
WHENEVER a company employs more than a mere handful of workers management must give proper attention to group as well as individual relationships. Studies have clearly indicated that group relationships can be more important than working conditions or pay.

Man is a gregarious animal. He not only craves individual recognition, he also is anxious to conform with the norms or standards established by the group to which he belongs. Thus, a fast worker may prefer to slow down on the job rather than become known to other employes as an "eager beaver."

This group relationship, sometimes referred to as the "informal organization," is a new area for management attention. Although the field is still somewhat imperfectly understood it is clear that management must find and apply incentives not only for the individual but also for the group as a whole.

Maintaining Morale

EMPLOYE morale is usually either high or low. It may sometimes be only fair but this is usually a transitory state and in any event cannot be considered satisfactory by management.



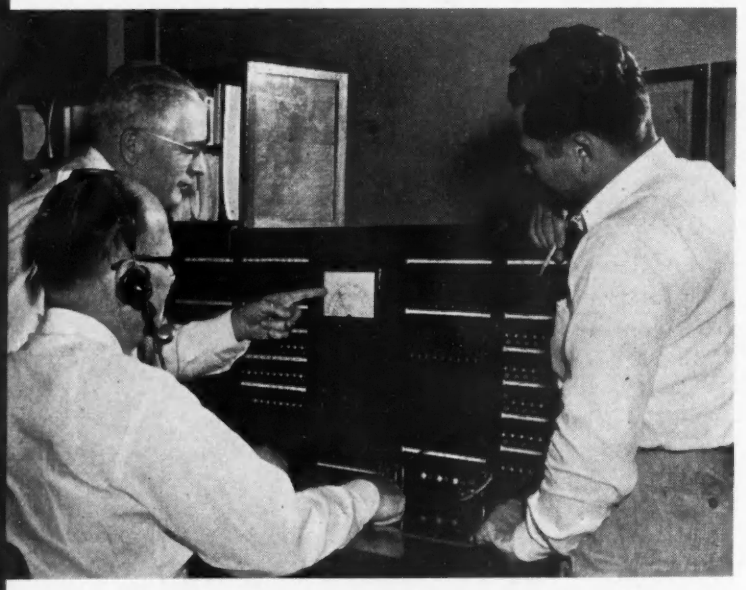
INSTRUCTIONS should be given clearly and employe questions should not be avoided. The willingness to perform will be improved if the employe understands the task is important.—(S. W. Bell Photo.)

Low morale will result in lowered productivity and reduced efficiency. It can be discovered through the use of appropriate attitude surveys and should be suspected whenever the employe turnover rate is high, grievences and dissatisfactions increase, workers are frequently absent from work, attitudes are poor and job performance is inadequate.

Management can improve morale and maintain it at a high level if inequities are corrected and conscientious efforts are thereafter made to treat all employes fairly all of the time. Their interest and participation should be encouraged and good human relations techniques should be applied at all times. Just a few instances of arbitrary treatment, however, can tear down months of effort.

Communications

THE CLIMATE for maximum employe participation and productivity will not be favorable unless there are effective communication channels. Information, ideas and incentives must flow freely from the top to the bottom, from the bottom to the top, and laterally between employes and departments within the company.



MANAGEMENT cannot do its job if the channels are not open for an upward flow of employe ideas, desires and information.—(S. W. Bell Photo.)

Downward communication can be successful if management will promptly inform employes of all major developments. If the information is not important do not clutter up the channels with trivia. If the information cannot be released while it is "hot" then it can be expected that the rumor mill may take over — often with inaccurate information that plays upon employe fears and insecurities. And, of course, the communications effort must be sincere.

Management cannot do its best job if the channels are not open for an upward flow of employe ideas, desires, and information. Such a climate can be created if employes are constantly encouraged to express their views through such media as personal contacts, meetings, memoranda, and suggestion plans.

Upward communications cannot, however, be forced. Employes will not express themselves unless management is sincerely interested in the worker and there is freedom from fear of criticism, ridicule or disciplinary action.

Summary

EFFECTIVE employe direction is perhaps the greatest challenge facing present day management. It has been conclusively proved that employe productivity can be increased if proper and adequate attention is given to such matters as training, morale, group relationships, communications, etc. Although substantial progress has been made, the function of employe direction still receives more "lip service" than positive action.

The following points are universally recognized as essential stepping stones on the path to enlightened employe direction:

(1) Be considerate of others at all times.

(2) Be sure before criticising and then do it constructively and privately.

(3) Never fail to give credit promptly when and where due.

(4) Take a sincere interest in people.

(5) Remember that a leader always tries to set a good example.

(6) Be a good listener; you can't learn anything while *you* are talking.

(7) When you make a request for action give a reason for it.

(8) Instill in employes the desire to do things and give them a feeling that their work is important.

(9) Delegate responsibility whenever possible and treat employes as essential partners in a cooperative undertaking.

(10) Keep employes fully informed and seek their ideas and opinions.

(11) Be positive and be consistent.

These points will not only work on the job but also for every day personal living. And, if the entire installment were to be summed up in just a few words, we would refer your attention to the Golden Rule.—*To Be Continued.*

New Reference Books

THE FOLLOWING books are now available from the *Educational Division, Telephone Engineer Publishing Corp., 7720 N. Sheridan Rd., Chicago 26, Ill.*

(1) "*Simplified Electricity for Utility Workers*" by Percy Rutledge. This training course offers the nontechnical employe the opportunity to become well-informed on the fundamentals of electricity. Complete Course — 10 Units (Not sold separately), $10.20. Teacher's Manual, $1.50.

(2) "*Electrical Circuit Diagrams,*" for those persons who understand direct and alternating current principles, but need to know how to interpret electrical circuit diagrams. 72 pages (wire-o-bound). $1.50.

(3) "*Industrial Electronics,*" by Harold W. Ranney. This text is divided into three parts consisting of (1) a series of Information Units, (2) Experiment Units, and (3) an Appendix of valuable technical data. 181 pages; plastic bound; $4.00.

How's Your

Rating As A Boss?

By ERNEST W. FAIR

WHAT FACTORS make a good boss? How good a boss are you? How do you rate as a boss? Try this test and find out how good a boss you are. 25 "yes" answers qualify you for a "perfect boss" rating. Less than 15 "Yes" answers — and you need to improve your methods.

THERE'S hardly a telephone company executive alive who at one time or another hasn't wondered how good a boss he is. As the years of experience pile up he becomes more and more certain that being a competent and well-liked boss is never as easy as it may seem to others.

In order to devise an easy-to-use chart that any executive could employ to answer this question for himself we talked to 100 level-headed employes and asked them — "*What factors went with the making of a good boss?*"

We've made a list of the most often mentioned points after weeding out factors which may have been desirable from the employe's viewpoint but would have been disasterous from that of management.

This left us the following 25 ratings on what comprises a good boss. A box is presented hereto for scoring. Two experts to whom we showed this list told us that a rating of 25 "Yes" answers would be perfect, 20 better than average, 15 average, and anything below would call for corrections in the procedure of handling the staff.

How do *you* rate as a boss against these 25 points?

(1)—"*The last time I corrected an employe* for something and then later found out the individual was not guilty after all, I immediately apologized to the employe."

Employes expect their boss to exercise discipline but they also expect him to admit his error when wrong in so applying that correction.

(2)—"*I have a policy in my department that any employe can talk to me at any time about anything* concerning the company, his job, etc."

The employe too scared to approach the boss never has an opportunity to present worthwhile ideas which have occured to him while working at his job.

(3)—"*Whenever an unpleasant situation arises* in the department I step forward and shoulder the responsibility rather than try to alibi it off as the fault of an employe."

No employe can make promises or concessions for the company; that's always the job of the boss.

(4)—"*Every one of my people know and understand that I realize they are human and expect them to be making mistakes* from time to time — but they also know I will not tolerate too many such mistakes."

No human being is perfect and employes no less than employers.

(5)—"*It's a policy in my department that the employes can always bring any personal problem to me* and that I'll do my best to help them on it or at least show them the way to get that help and they also know that even when I see such problems exist I'll never interfere unless they first ask me to do so."

All of us have our own feelings about personal difficulties; some employes want to work these out themselves and many consider such problems nobody's business but their own.

(6)—"*No employe of my department has ever been fired without good cause* and without a hearing — they all know I will give them a fair hearing on the situation which brought up the need for their dismissal."

Such a policy insures confidence in the boss by staff.

(7)—"*When disputes arise between employes* in one section of the department and those in another I always step in and arbitrate the problem for the good of the company and without taking sides."

The boss who looks the other way and lets such things work themselves out is not only without the respect of his employes but builds untold business problems for himself.

(8)—"*I make it a point to always compliment an employe* when he or she does something not called for in their regular job duties."

Many more company employes would do that "little extra" willingly all the time if their bosses took occasion to commend them for so doing.

(9)—"*We always see to it that an*

employe is remembered upon those personal occasions which are important to that individual — such as birthdays, anniversaries, Christmas, etc."

Such thoughtfulness costs very little in time or money; pays big dividends in employe loyalty.

(10)—"*I never high pressure my employes into contributing to my favorite charities* or those of my friends."

All of us like to make individual decisions about charitable contributions; none of us can give to all for there are too many these days. Employes dislike any boss who uses his power to force them to contribute against their own free will.

(11)—"*We have a policy in our department that no one in authority will listen to or tolerate gossip* by one employe concerning another."

This sense of fair play assures every one on the staff there will be no chance for hidden slander they cannot answer.

(12)—"*I bend over backwards to keep from playing favorites* among my employes in any manner, shape or form."

We all tend to try to reward more ambitious individuals but doing it in wage boosts rather than special favors has a better chance of keeping the rest of the staff happy.

(13)—"*We make it a point to check, double-check and triple-check salary payments each week* to avoid any possible chance of error arising."

The first time this happens employes think little of it but when it occurs again and again they begin to suspicion the boss is trying to put something over on them.

(14)—"*In times of real emergencies I see to it that the employe involved is given time off without docking salary.*"

These occur very rarely. Things such as a death in the family too often come when the average employe can least afford the loss of a day or two of wages and they occur so infrequently the small sum of money involved will have little effect on the company's profits.

(15)—"*When we hire employes in the department* for a given job we do not expect them to do other chores when things are slack unless that has been understood beforehand."

This is a small point but a very important one to the average employe.

CHECK CHART

Number	YES	NO
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Totals	**YES=**	**NO=**

Ratings "Yes" answers: 25—Perfect; 20—Better than average; 15—Average; Below 15—"I'll have to do something about it!"

(16)—"*If we have had a month or two of terrifically tough business* and the staff has worked extra hard to take care of it we always see to it that they are rewarded for their effort."

(17)—"*When I give specific authority to anyone on the staff* I make it a point to always back up that authority and never go over his or her head."

Authority is useless to such an employe unless really given to them.

(18)—"*When customers have compliments for the firm,* our service or the efforts of an individual employe I always see to it that these are passed on to everyone on the staff."

Doing this gives employes added pride in their work and the department as well as their boss.

(19)—"*I never ask any employe to do anything that I would not be willing to do myself.* I handle my share of the distasteful jobs along with the staff."

(20)—"*When corrections are handed out* I make it a point to talk with the employe involved in privacy rather than in front of other employes."

(21)—"*When special commendations or praise* are to be given any member of the staff I see to it that this is done in front of others."

(22)—"*If I suspect that something is wrong* involving some member of the staff I investigate myself and do not seek the information from among other employes."

(23)—"*No matter how many business worries I may have* at any particular time I keep these to myself and don't burden the employes with them."

(24)—"*I never discuss my employes with other department heads* or employes of other departments unless I have something nice to say about them."

(25)—"*I've learned to control my temper* in dealing with employes no matter how childish a mistake he or she may have made. Anger in talking with an employe only builds resentment against me on his or her part."—*Ernest W. Fair.*

FIG. 254:—A typical installation of self-supporting telephone cable with Copperweld conductors. Note long spans of cable and small sags made possible by the use of high strength Copperweld conductors. (Courtesy Copperweld Steel Co.)

Modern

Cable Construction

By JOHN S. REED

In Chapter IX of his article on "Modern Cable Construction," Mr. Reed starts a discussion of self-supporting cables with high strength conductors. Chapter VIII of this article was concluded in the February 15 issue of Telephone Engineer & Management. Chapter IX will be continued in the April 15 issue.

Self-Supporting Telephone Cables With High Strength Conductors

TELEPHONE cables described thus far in this series are of a type that requires the support of a steel messenger, because otherwise the soft copper conductors would stretch, damaging the dry paper insulation. Also on lead-covered cables, the sheath would stretch and part in places, particularly at wiped joints. Twisted splices in conductors would come apart or at least produce noise in the circuits.

Within recent years, plastic-jacketed cables with high strength conductors have been developed, which do not require supporting from a messenger. Self-supporting cables are considered to be an advantage for the small sizes involved, up to 26 pairs, where the cost of a separately installed messenger might be quite high in comparison to the cost of the cable itself. Field erection of self-supporting cable in various installations is said to be quickly accomplished with small crews, with savings in time and labor. A typical installation is illustrated in *Figure* 254. *Figures* 255 and 256 indicate the procedure employed.

High strength of conductors is obtained by employing Copperweld (steel jacketed with copper), or hard drawn copper, or medium hard drawn copper conductors, 19 gauge in size.

The information on self-supporting cables with Copperweld conductors is adapted from a paper on "Self-Supporting Communication Cables Using Copperweld Conductors" by F. E. Leib of Copperweld Steel Company, J. V. McBride of Plastic Wire and Cable Corporation, and J. R. Ruhlman of Preformed Line Products, Inc.

The idea of a self-supporting communication cable with strength in its conductors is not new. Telephone drop wire, for example, has always received its strength from the conductor material itself, with Copperweld commonly used for this purpose. In addition, several years ago 6-pair drop wire was made available in the Bell System using Copperweld con-

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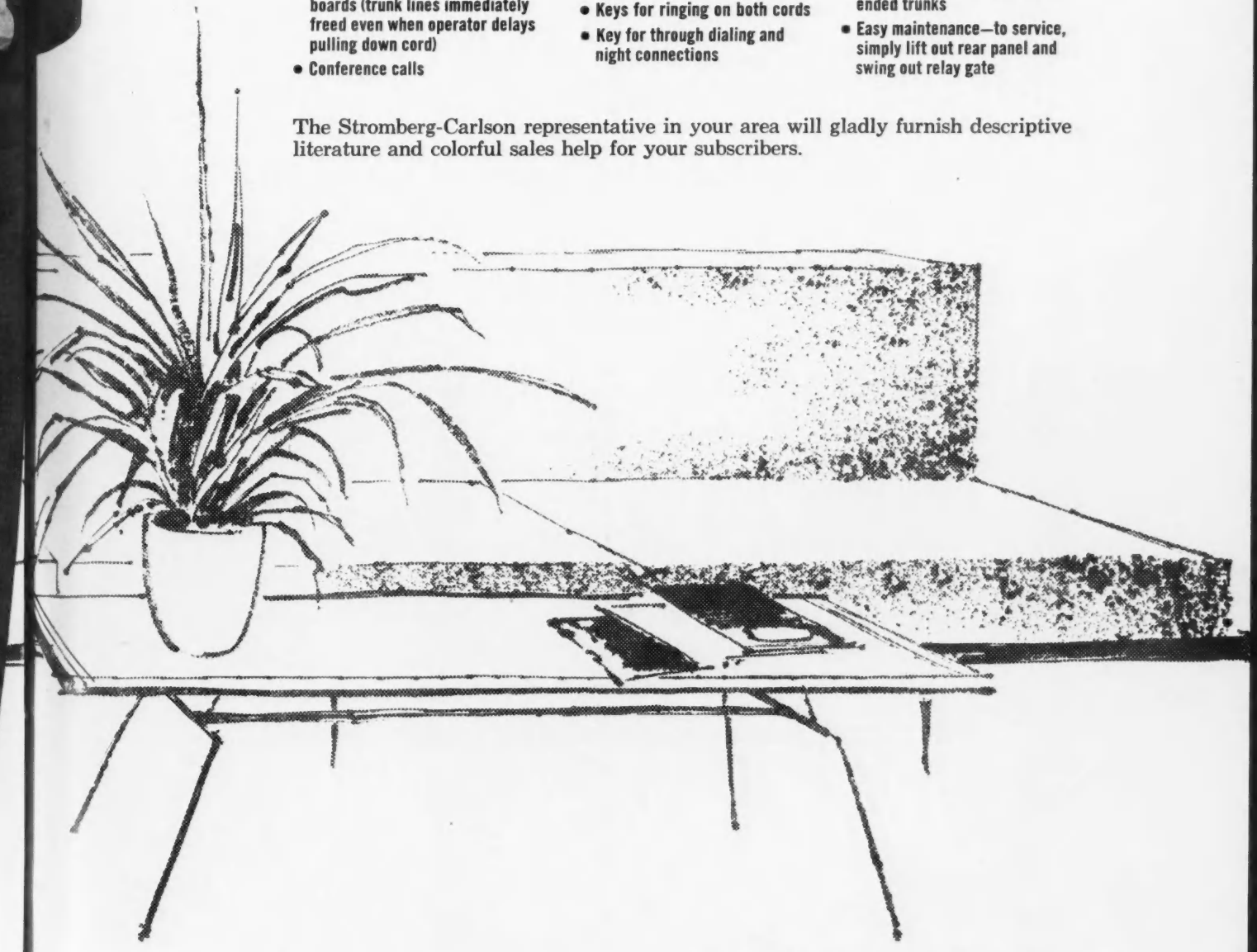

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FIG. 225:—Self-supporting cable being pulled in at the end of a run. The cable was attached temporarily to the truck with a Preformed dead end grip to facilitate the pulling and sagging operations.

FIG. 256:—Lineman is applying Preformed armor rods over the cable at a tangent support.

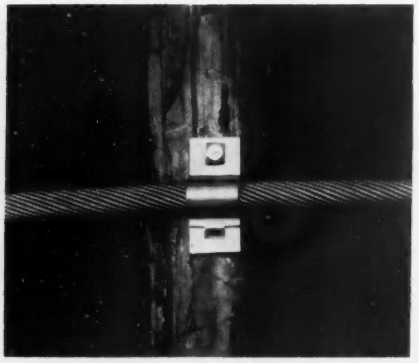

FIG. 257:—Tangent support with Preformed armor rods and metal clamp specially designed for this application.

FIG. 258:—Tangent support for self-supporting cable on spool type insulator with Preformed armor rods.

FIG. 259:—Dead end support for self-supporting cable using Preformed guy grip.

ductors with rubber insulation over the wires and a neoprene jacket over the bunched wires. While this is termed a 6-pair multiple drop wire, its use being mainly for service connections to apartments and buildings, it is nevertheless a modern form of self-supporting communication cable. A vinyl plastic version of this construction is manufactured by several wire and cable companies.

Where rubber insulation and neoprene jacket is employed, both of which are bonded to each other and to the wire itself, the multiple drop wire can be easily and inexpensively attached to the pole and building or to poles in the line by means of wedge-type clamps without damage to the cable. However, in the case of self-supporting communication cables with plastic insulation, such as polyethylene for the jacket, there is little adhesion between the conductors and the insulation, causing undesirable slipping of the conductors inside the insulation when these clamps are used.

This problem led to the consideration of a long grip to provide relatively light pressure uniformly distributed over a wide area of the cable surface. Early trials with improvised dead-end grips originally designed for large power conductors by the Preformed Line Products Company showed that this type of grip had the desired characteristics. Later refine-

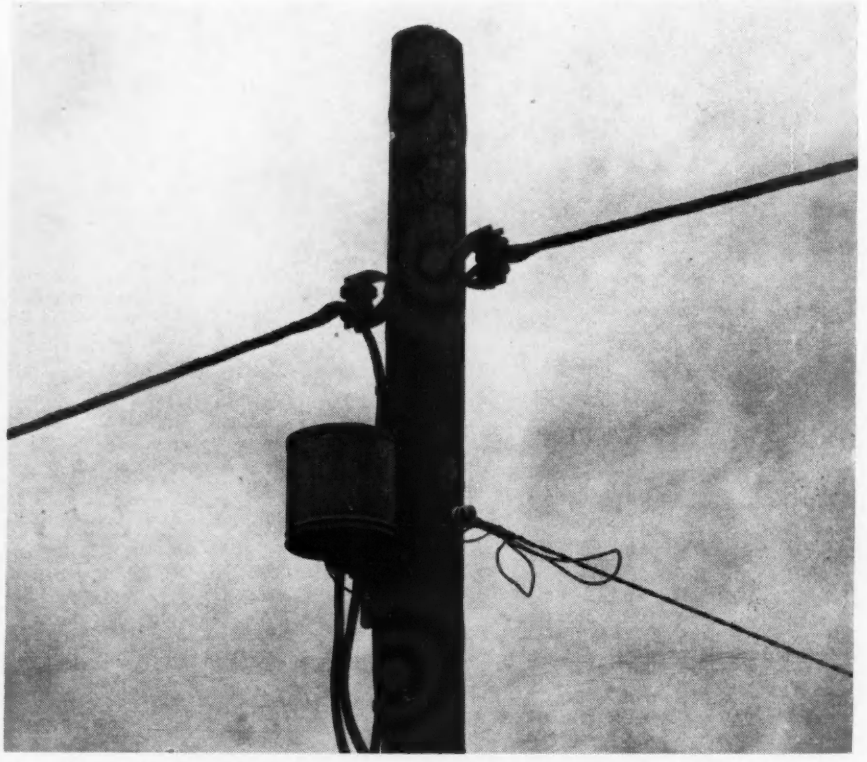

FIG. 261:—Dead ending self-supporting cable from two directions for looping into cable terminal.

ments of these grips for self-supporting communication cable proved to be satisfactory. These grips are stated to be capable of developing the full strength of Copperweld telephone cables; and in tensile tests to the breaking point, the fracture occurs in the cable outside of the dead end.

To fit various sizes and makes of plastic jacketed self-supporting cables, preformed grips are made in a number of sizes. A color code is employed to identify each type of grip for particular pair sizes of cables.

Figures 257 to 259 illustrate tangent and dead end supports and Figure 260 shows the typical method of application. Tangent supports are needed to distribute the clamping pressure over a substantial area of cable surface, even though this pressure would be less than at dead end points. The pressure is caused by the weight of the cable (with or without storm loading), and, in some cases, from line angles. Straight preformed armor rods over the cable at the attachment points are employed to reinforce the cable, and the assembly is fastened to the pole with a clamp as shown in Figure 257. If a cable terminal is required at the support, the cable may be dead ended from both directions and a loop allowed for the terminal as shown in Figure 261. The double dead-end arrangement may be used for cable splices at poles. It should be noted that cable splices can be made only at poles, not in the span, as in the case of messenger supported cables.—

FIG. 260:—Typical method of applying a Preformed dead end grip to self-supporting cable.

To Be Continued

EDITOR'S NOTE

We have a few copies of "*Rebuilding The Rural Outside Plant*" by John S. Reed. Price $1.50.

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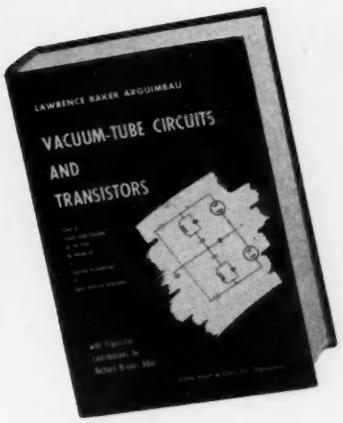

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Questions and ANSWERS

Conducted by Jay G. Mitchell

This month, Mr. Mitchell discusses: (A) A Possible Error in Ordering Equipment; (B) A sample of Labor Relatives; and (C) An Interesting Novelty. If you'd like quick help on some technical problem, send an inquiry to Mr. Mitchell, Telephone Engineer Publishing Corp., 7720 Sheridan Road, Chicago. A letter will bring you a quick reply. Please enclose self addressed and stamped return envelope.

Ordering Equipment

QUESTION: We have a small branch office which is served by a very old type of switchboard with a circuit arrangement in which there are "busy" lamps for the line jacks instead of the standard "busy" test now used in manual local service switchboards of every kind as far as we can learn. Whenever the line is busy a lamp associated with all multiples is displayed at the other positions while the connection remains up and the operator is not required to make the conventional test for "busy."

We have recently purchased a supply of these "busy" lamps which are not entirely satisfactory. In comparison with the original lamps in this part of the switchboard circuit our operators have difficulty in determining when they, the newly purchased lamps are lighted as they should be whenever the line with which they are associated is busy.

While this Central Office Equipment is soon to be replaced we would like very much to have some suggestions as to how to obtain uniform or practically uniform brightness in the "busy" lamps. Thank you.

ANSWER:—Since this inquiry was not accompanied by any circuit details whatsoever and since "*Questions And Answers*" has only seen the circuit for *local exchange service* in rare instances, the following comment is submitted. The "busy" lamps associated with any one line circuit must be of approximately the same candle power for each appearance. Now telephone switchboard lamps, as well as other kinds of electrical lamps, when operated in parallel under conditions where it is essential that their brilliance should be uniform, must have the same electrical characteristics. It is suspected, in this case, that at some time a new supply of switchboard lamps was purchased *the operating voltage only being specified*, and that an electrically different type of lamp than previously used was received. The remedy is obvious, if this is the case, and lamps for replacement should be ordered which carry the same code and stock number as the lamps previously used that were satisfactory.

This is illustrated in the following tabulation of some tests made on switchboard lamps of exactly the same linear dimensions (that is, fitting the same lamp jacks) and designed and supplied by three different manufacturers for telephone equipment operation from the same voltages.

Manufacturer Number 1.	
Specified Operating Voltage	5.0
Current Consumption (milli-amperes)	30.8
Foot Candles (illumination)	1.8
Manufacturer Number 2.	
Specified Operating Voltage	5.0
Current Consumption (milli-amperes)	33.2
Foot Candles (illumination), inadequate	??.?
Manufacturer Number 3.	
Specified Operating Voltage	5.0
Current Consumption (milli-amperes)	31.4
Foot Candles (illumination)	1.8

It is obvious from the test results listed above that the lamp supplied by manufacturer number 1 has been found to be superior to those supplied by manufacturers number 2 and 3 because of its greater illuminating power without a correspondingly greater current drain. The lamps supplied by manufacturers 2 and 3 were comparatively low in illuminating power while their current drain was greater. On the basis of these data it would seem to be reasonable to conclude that this telephone company has unwittingly acquired a supply of switchboard lamps which are not suitable for this kind of signal and are unnecessarily inefficient. If this reply does not seem to be applicable to the situation please send a sketch of the circuit involved for study and further analysis.

"Pole Labor Relatives"

QUESTION:—In proceedings regarding a telephone company rate case at which we were interested spectators the term "Pole Labor Relatives" was frequently heard in the testimony of the witness for the telephone company. We would appreciate a brief explanation of the meaning of this term for the benefit of our engineering and accounting people. A stamped addressed envelope is enclosed for the reply.

ANSWER:—Almost 40 years ago many telephone companies discovered that their existing rate schedules, many of which had been in force without change for a long time, appeared to be inadequate for the continuous successful operation of the

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April is the month when the Yellow Pages emblem promotion begins throughout the country.

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• The Bell System will also have two-page spreads in *Better Homes & Gardens*, April, and *The Saturday Evening Post*, April 6 issue, and a page in *Life*, April 1 issue. These ads will feature the emblem of each of the 104 tie-in advertisers; the magazines in which they appear will have a circulation of over 15,000,000.

• The Yellow Pages emblem will be promoted by Bell and Independent Companies in newspapers, TV, billboards and other local advertising media. Local business men in many communities are now displaying the emblem on their trucks, in windows and in other advertising material.

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companies involved. As a result great number of applications for financial relief were filed with the regulatory commissions having jurisdiction.

The work involved in the equitable decisions which had to be made by the regulatory commissions in all these matters rapidly assumed a tremendous amount of detail since many valuations of the construction, operation and cost of maintenance were often involved. In order to handle the huge volume of work and to coordinate the results for wider application one of the state commissions quietly instituted studies to determine if the *labor* element of all plant construction *in man-hours* might not be standardized.

This study was found to produce workable results. The labor in *man-hours* for each identifiable unit of plant was carefully determined with the result that the labor cost of each item could be determined in dollars by the application of the properly computed composite rates paid for the type of labor involved in the territory covered. This method shortened considerably the work of determining the cost, for the area involved, of the plant items for which the basic figures were completed and available. This is a very much curtailed outline of the proper answer to this inquiry.

For illustration the "labor relatives" for a 25 foot Northern White Cedar Class 5 Pole are listed below as computed and used. *It must be understood* that this is not an average that may be applied generally to any pole other than the identical one specified nor to the same kind of pole when set in conditions of soil etc. different from those specified.

An illustration of the construction of Pole Labor Relatives is shown below. This tabulation is based upon careful comparison of these data with actual experience records under normal conditions. Standard conventional methods, normal soil conditions and construction practice was the basis and *advanced efficiency methods* and *unusual conditions* will modify the results and conclusions set out in some cases.

Item of Plant, Northern White Cedar Telephone Pole.

Length (feet)	25
Class of pole	5
Circumference 2 feet above ground (inches)	31.9
Depth of hole (feet)	5
Diameter of hole (inches)	16
Trench (18 inches by 36 inches)	0
Excavation (cu. yds.)	.259
Approximate weight (pounds)	420
Labor (man-hours)	
Digging	1.927
Erecting	.385
Tamping	.350
Lining	.090
Moving	.100
Unloading	.370
Hauling	.920
Shaving	1.430
Framing	.500
Gaining	.270
Locating	.500
	6.842

The man-hours in this table which sometimes are completed, for instance, by the supplier of the poles, must not, of course, be included here although they are, under this method of purchase, *an element in the total cost* of the pole to the telephone company. By advanced efficiency methods, for illustration, is meant mechanical hole boring and machine setting and unusual conditions may be, for illustration, clay soil or rock setting or the building of cribs in streams where digging is impractical or impossible. When these conditions prevail the corresponding labor relative must be computed anew in accordance with the existing situation.

Cable Hangers

QUESTION:—Can you supply us with some information regarding the elimination of the kind of trouble that is, rightly or wrongfully, thought to be due to the use of the usual type of metal cable hangers. Our company has found that some cable trouble appears to begin at the point where the

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lead cable sheath is enclosed in the hangers. In the instances where this kind of trouble has occurred the cable had been in service for a long time and was not in too good condition but when and if we replace it and there is any practical method of eliminating future trouble of this kind we would like to know about it in order to forestall, as completely as possible, future trouble of this sort which is very apt, according to our experience, to become widespread in a given cable and very difficult to localize.

ANSWER:—This inquiry touches upon a number of controversial points which are of importance in the construction methods prescribed for aerial cable in telephone plant. It is intended, for that reason, to confine any discussion of this inquiry to a mere acknowledgement until complete data can be supplied covering all the conditions of exposure to extraneous currents, unusual atmospheric disturbances, types of protective equipment, possibility of plant retirements and so on. The only direct reply possible is that a new type of cable hanger made of Nylon has become available and seems to be entitled to careful and informed study for use in telephone plant construction. If this subject is of general interest to the telephone field it will be discussed more fully upon the receipt of inquiries.—*Jay G. Mitchell.*

General of N. W. Elects Myrick, Vice President

MARVIN L. MYRICK has been elected vice-president of General Telephone Co., of the Northwest.

Mr. Myrick has held the office of secretary and treasurer for General of the Northwest since August 1951, and his promotion to the vice-presidency position became effective February 15. He will also continue in the capacity of treasurer and industrial relations director of the company.

A graduate of Montana State University and the Harvard Graduate School of Business Administration, Myrick became affiliated with General Telephone Co. of the Northwest in April 1948, as a junior cost studies engineer. He was named administrative assistant to the vice-president and general superintendent in 1950. Since joining the organization he attended the Public Utility Executive course of the University of Michigan.

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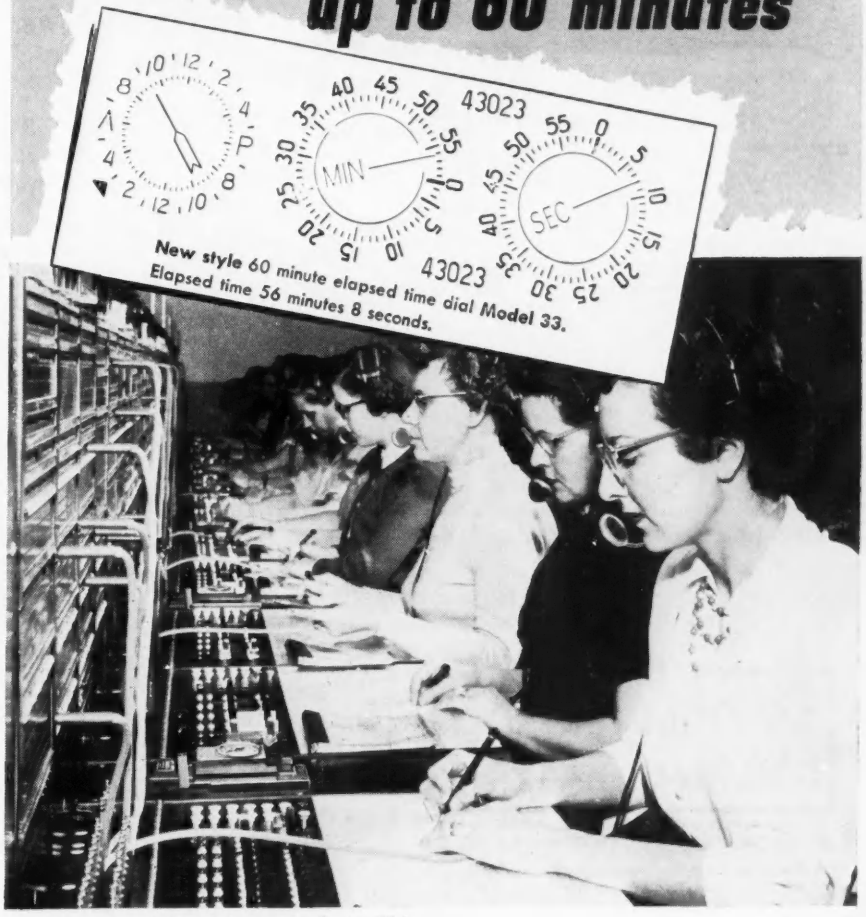

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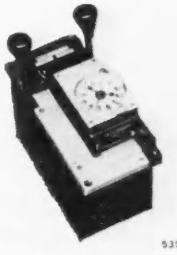

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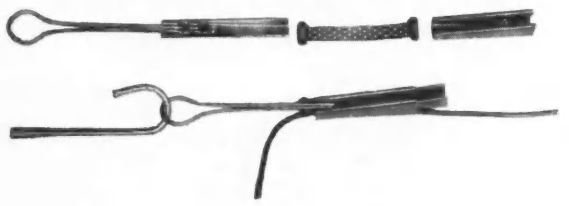

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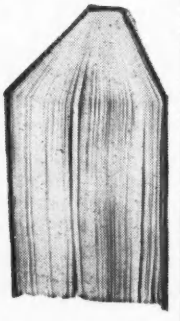

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Neal A. Hintze Dies

NEAL A. HINTZE, 54, manager of the Waynesboro, Va., exchange of the Clifton Forge Waynesboro Telephone Co., died recently of a heart attack.

A native of Wausau, Wis., Mr. Hintze had lived in Waynesboro since February, 1945. Before coming to Waynesboro he held positions as manager, district manager and commercial supervisor of the old Commonwealth Telephone Co., of Wisconsin.

NEAL A. HINTZE, 54, manager, Clifton Forge Waynesboro Tel. Co., Waynesboro, Va., dies of heart attack.

Mr. Hintze was a member of the board of directors of the Waynesboro Chamber of Commerce, Kiwanis Club and Knights of Columbus. He was a member of St. John's Catholic Church.

Survivors include his widow, Mrs. Rilla Villey Hintze; three sons, Colin Hintze and Neale Hintze and Bernard Hintze, both of Wisconsin, and one daughter, Mrs. Joyce Davis.

Frank Boyd, Jr., Joins General of Michigan

ELECTION of Frank Boyd, Jr., as assistant controller of General Telephone Co. of Michigan has been announced by T. A. Saunders, company president.

Prior to joining General Tel. of Michigan, Mr. Boyd was a member of the accounting staff in General Telephone Co. of Pennsylvania and has been chief accountant for General Telephone Co. of Ohio since 1951. Mr. Boyd will make his headquarters at Muskegon.

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OUTDOOR BOOTHS (Part III)

By JOHN S. REED

PART III of TE&M's Operating Manual on "Outdoor Booths" discusses — (1) Aluminum Outdoor telephone booths. Part II appeared in the March 15 issue of "Telephone Engineer & Management."

Aluminum Outdoor Telephone Booths

ALUMINUM outdoor telephone booths are noted for their durability, efficient design, and modern appearance which harmonizes with architectural trends of today. They have a distinctive look and readily attract attention wherever they are placed. In addition, they have the desirable features of adequate size, satisfactory ventilation, and good lighting. *Figures* 27 to 29 show the appearance of typical outdoor telephone booths of aluminum construction.

Because of its lightness and strength, aluminum alloy is employed for the framework of these booths. In addition, this material can be extruded through suitably shaped die orifices in powerful hydraulic presses

FIG. 27:—The Alcoa Aluminum Outdoor Telephone Booth is well illuminated at night and has a bright clean and colorful appearance. Note convenient rack and shelf provided for telephone directory.

FIG. 28:—The Reynolds Aluminum Outdoor Telephone Booth has an attractive appearance made possible by the use of an anodized aluminum alloy structure.

with resulting economy of production. By this means, it is possible to shape billets of aluminum alloy into continuous lengths of items such as corner posts which can be cut into sections of the proper length. The extrusion process can also be employed for forming pieces of complicated form. For example, the booth door frame is extruded in one complete unit, eliminating the necessity for welding together several parts to form the door frame.

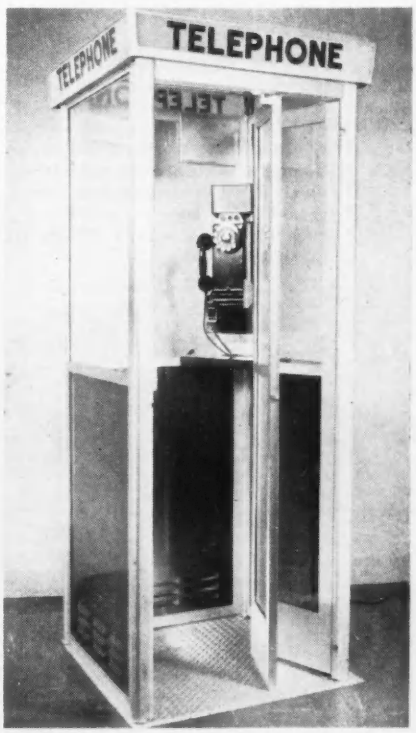
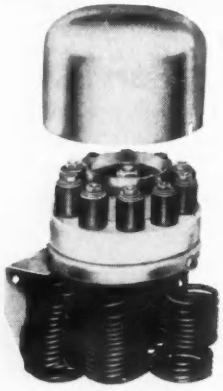


FIG. 29:—The Benner-Nawman Aluminum Outdoor Telephone Booth is fabricated in safety glass and steel enameled panels attractively arranged in an aluminum frame. Note anti-skid plate that may be placed if desired.

To prevent corrosion which might occur under certain atmospheric conditions, the aluminum alloy parts are anodized by an electro-chemical surface treatment. This anodized finish is extremely tough, and cannot be damaged by paystation users. Pencil marks and grease stains are easily removed by ordinary cleaning such as wiping or washing.

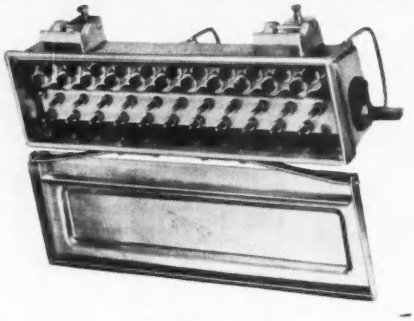
For economy of shipping and stocking, the aluminum booth is designed to be shipped in "knock down" form and assembled prior to installation. All parts for a single booth are delivered in several compact packages as illustrated for a typical shipment in *Figure* 30. The manufacturer provides detailed instructions for assembling the booth, a procedure



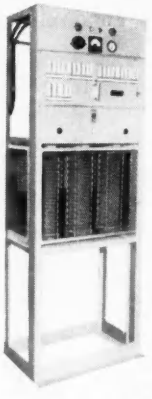
5-Circuit Power Cross Protector provides a single assembly for 5 circuits to be mounted on a 10-pin arm requiring only a single ground wire. Easy to install—use only 3 mounting screws. Made by COOK ELECTRIC COMPANY.

Corrosion-Resistant Crapo Stainless Steel Cable Lashing Wire, Type 430, is available in .045", .065", and .061" diameters. Crapo Galvanized (C Coated) Steel Cable Lashing Wire is available in .091" and .061" diameters. Made by INDIANA STEEL & WIRE CO., INC.

Here's Kellogg's Collection

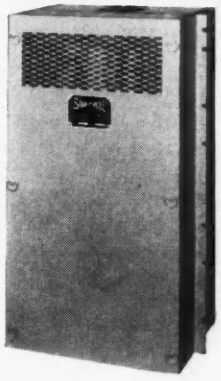


Strand Mounted Terminals—providing new Reliable Fuseless Protector Unit for station or cable protection. Static discharges are dissipated across the elements to ground. With repeated heavy discharges —from fault currents or power surges— carbons are shunted as the attendant heating permanently closes a metallic circuit to ground. Made by RELIABLE ELECTRIC COMPANY.

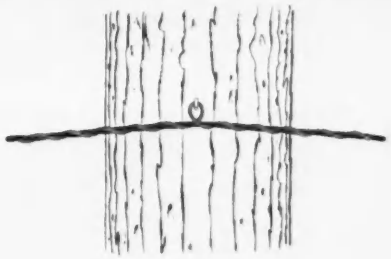


Air Compressor Dehydrator for supplying dry air to aerial and underground cables. Supplies up to 40 cables. Individual air flow indicators for each cable. Both automatic and manual units are available. S & G MFG. CORPORATION.

You'll like Kellogg's winning service, too! An experienced telephone man handles your order, and you get speedy delivery from your local Kellogg warehouse or distribution point.

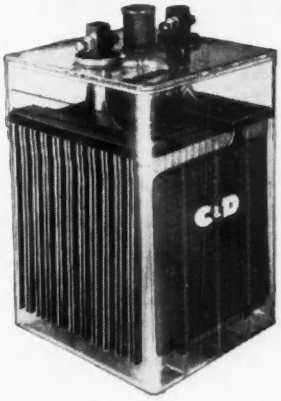


For Decimonic Ringing Systems—The K-5 Subcycle supplies permanently accurate ringing frequencies and closely regulated ringing voltages. Requires little power to operate and minimum maintenance. LORAIN PRODUCTS CORPORATION.

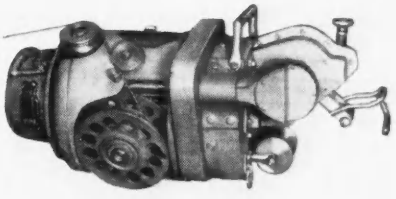


Preformed C Rural Tangent Supports for all C Rural cable. Made of stainless steel with neoprene coating for corrosion and abrasion protection. Easily applied by hand, no tools required. To install, place loop configuration on the wire and then wrap on the legs. PREFORMED LINE PRODUCTS COMPANY.

n of Winning Line Supplies



Extra-Long Life!—The suspended and supported plate construction is an exclusive feature of C&D BATTERIES. Choose C&D PlastiCal (lead-calcium grid) for life expectancy of 25 years . . . for 14 years expectancy, specify PlastiCell (high tensile lead alloy grids). Made by C&D BATTERIES, INC.



For the Placement and Spinning of New Cable—The Neale Model D Pull Type Spinner also used for maintenance spinning of existing cable. Offers instant adjustment to all size cable—from minimum to maximum diameter of 2¼". CABLE SPINNING EQUIPMENT COMPANY.

—

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Kansas City 1, Missouri
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1515 Turtle Creek Blvd.
Dallas 2, Texas
Riverside 7-5191

1555 West Fourth Street
Mansfield, Ohio
Mansfield 7-2816

1594 Southland Circle, N.W.
Atlanta, Georgia
Sycamore 4-2441

which can be easily learned the first time.

On putting together the booth, the several assemblies form a solid structure of the shape and overall dimensions indicated in *Figures* 31 and 32. In case of damage to the booth as when it is struck by a motor vehicle, the damaged side can be easily replaced with a new section that fits exactly.

Each side of the booth has cross pieces or rails rigidly fastened on each end to the corner posts. In assembly, the booth framework is made rigid by means of a cross brace joining together the tops of the aluminum alloy corner posts. Adjustable brackets at the bottom attach the booth to the foundation slab (Figure 34) and add to the rigidity of the booth frame work.

The door is of the folding type, made of two extruded door frames joined together with three hinges, one each at the top, middle, and bottom. An integral bead in the edge of the door looks like a full-length hinge, adding to the appearance of the booth and keeping out rain. When the booth is unoccupied, the door is kept almost closed by a self-closing device to protect the interior from the weather and, at the same time, to indicate to the user the logical method of opening the door when entering the booth — by pushing, not pulling on the door.

Since adequate lighting and bright colors are important in an outdoor telephone booth, the aluminum booth is provided with safety glass panels and colored porcelain-enameled metal panels, red being the standard color

FIG. 30:—Knocked down in sub-assemblies, the aluminum booth is conveniently packaged in six separate cartons for easy handling. (Courtesy of Aluminum Company of America.)

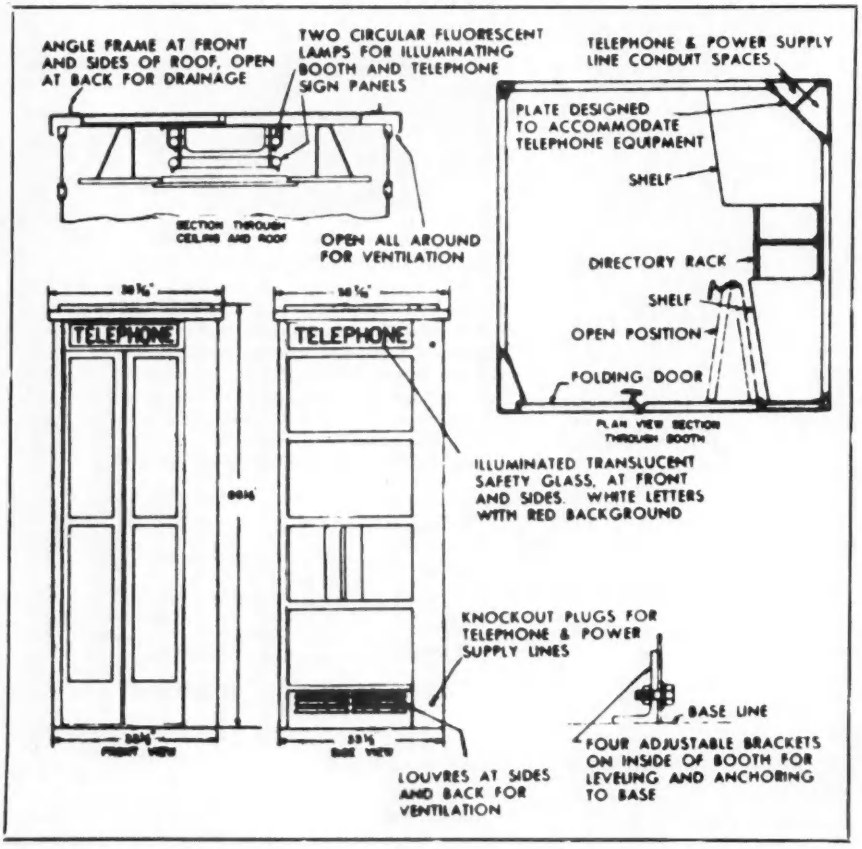

ANGLE FRAME AT FRONT AND SIDES OF ROOF, OPEN AT BACK FOR DRAINAGE
TWO CIRCULAR FLUORESCENT LAMPS FOR ILLUMINATING BOOTH AND TELEPHONE SIGN PANELS
TELEPHONE & POWER SUPPLY LINE CONDUIT SPACES
PLATE DESIGNED TO ACCOMMODATE TELEPHONE EQUIPMENT
SHELF
DIRECTORY RACK
SHELF
OPEN POSITION
FOLDING DOOR
PLAN VIEW SECTION THROUGH BOOTH
SECTION THROUGH CEILING AND ROOF
OPEN ALL AROUND FOR VENTILATION
TELEPHONE
TELEPHONE
ILLUMINATED TRANSLUCENT SAFETY GLASS, AT FRONT AND SIDES. WHITE LETTERS WITH RED BACKGROUND
KNOCKOUT PLUGS FOR TELEPHONE & POWER SUPPLY LINES
BASE LINE
FOUR ADJUSTABLE BRACKETS ON INSIDE OF BOOTH FOR LEVELING AND ANCHORING TO BASE
LOUVRES AT SIDES AND BACK FOR VENTILATION

FIG. 31:—General details and overall dimensions of Alcoa Aluminum Outdoor Telephone Booth.

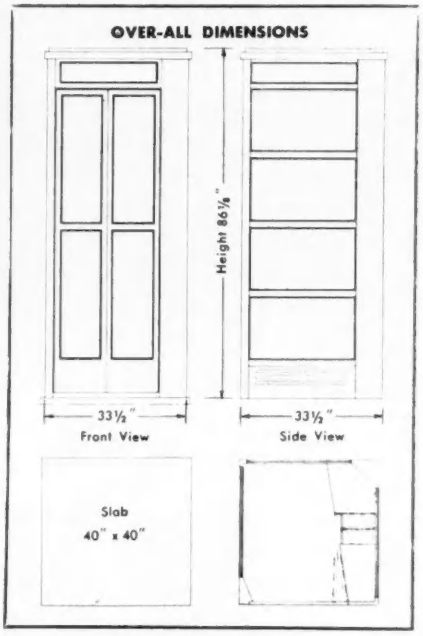


FIG. 32:—Elevation and plan views of Reynolds Aluminum Outdoor Telephone Booth with overall dimensions. Floor shown is concrete slab poured by customer.

for this purpose. Metal panels of other colors (blue and green) are available. or anodized aluminum panels may be used instead of the colored panels. The panels are mounted in the manner indicated in *Figure* 33.

Although some booth installations may have all three sides completely equipped with safety glass panels (*Figure* 36), the usual practice is to employ combinations of glass panels and colored panels, with the latter installed on the bottom quarter or half section on each of the three booth sides as in *Figures* 27 *to* 29. Where the booth is located next to a wall. metal panels are installed the full length of the obstructed side of the booth.

Narrow "Telephone" sign panels are mounted at the top of the booth on all four sides. These sign panels advertise the presence of the booth. They show clearly in the daytime, and, at night, the light fixture in the ceiling illuminates them, making the booth stand out and announcing the availability of a telephone.

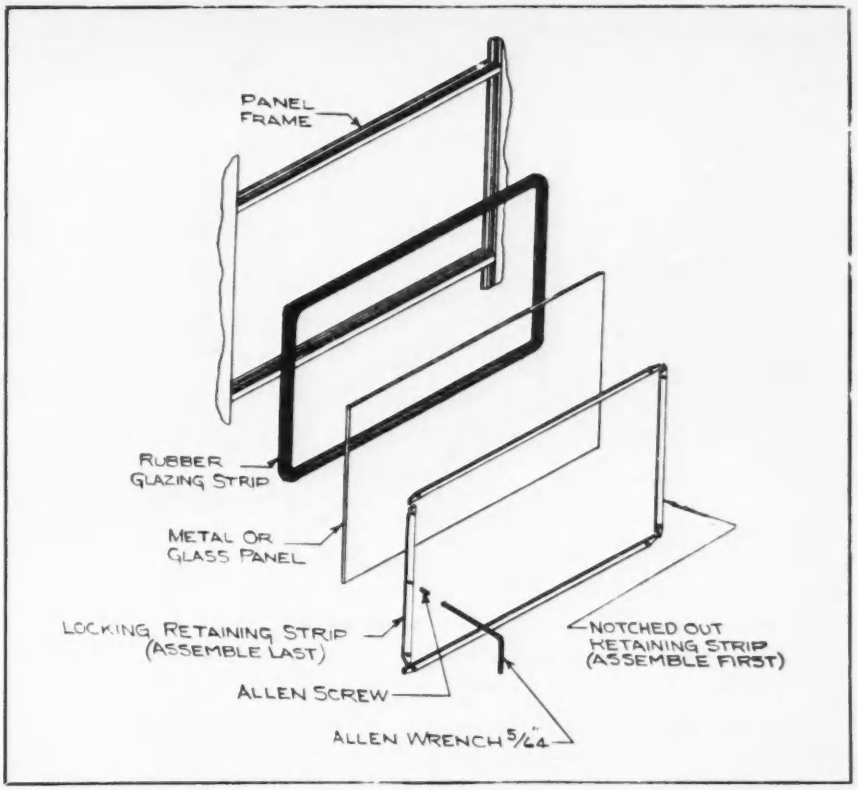


FIG. 33:—Method of assembling metal or glass panels on aluminum outdoor telephone booth. (Courtesy of Aluminum Company of America.)

Light Fixture

THE light fixture is an interesting feature of the booth. As shown in *Figure* 31, the fixture consists of two large circular fluorescent lamps, which are capable of providing three times the illumination of ordinary incandescent lamps of equivalent wattage. At night, these fluorescent lamps illuminate the interior of the booth and the telephone sign panels. In addition, the light shines through the glass panels into a large area around the booth.

These fluorescent lamps have about ten times the life of regular incandescent lamps, and, by using two lamps, the chance that the booth illumination will fail completely is made remote. It is thus unnecessary to check the light fixture at frequent intervals. The lamps are provided with the proper type of starter specified for them to assure long lamp life. These starters are designed to minimize the blinking of the lamps which causes rapid failure of the emissive material on the lamp filaments, and to protect the lamp ballasts.

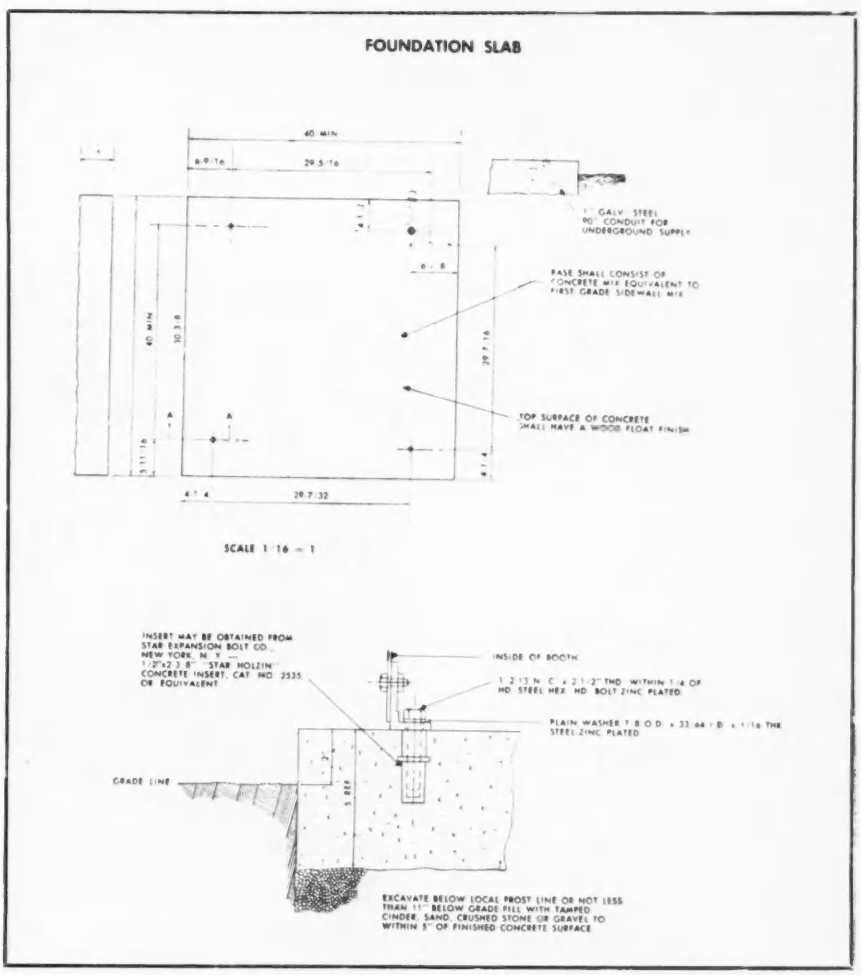


FIG. 34:—Typical foundation slab dimensions for aluminum outdoor telephone booth. (Courtesy of Reynolds Metals Company.)

Ventilation

NATURAL ventilation is obtained by providing the booth with bot-

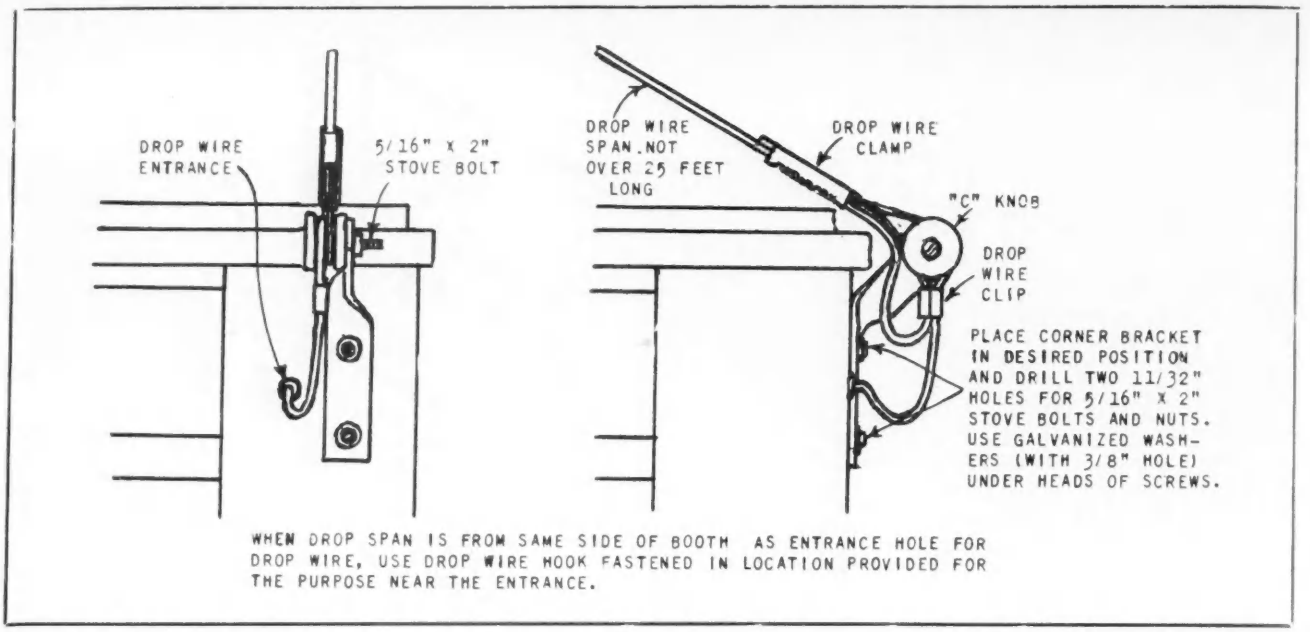

DROP WIRE ENTRANCE
5/16" x 2" STOVE BOLT
DROP WIRE SPAN NOT OVER 25 FEET LONG
DROP WIRE CLAMP
"C" KNOB
DROP WIRE CLIP
PLACE CORNER BRACKET IN DESIRED POSITION AND DRILL TWO 11/32" HOLES FOR 5/16" x 2" STOVE BOLTS AND NUTS. USE GALVANIZED WASHERS (WITH 3/8" HOLE) UNDER HEADS OF SCREWS.
WHEN DROP SPAN IS FROM SAME SIDE OF BOOTH AS ENTRANCE HOLE FOR DROP WIRE, USE DROP WIRE HOOK FASTENED IN LOCATION PROVIDED FOR THE PURPOSE NEAR THE ENTRANCE.

FIG. 35:—Suggested method of attaching drop to outdoor telephone booth using drop wire hook or corner bracket with "S" knob.

tom louvers on three sides of the booth and openings in the roof overhang leading into open spaces in the ceiling on all four sides. The air enters through the louvers and rises inside the booth to the ceiling where it flows out through the openings in the overhang.

Field Installation and Wiring Of Aluminum Outdoor Booths

WHEN INSTALLING an aluminum type booth, the practice is to attach the booth directly to permanent concrete surfacing or tile or wood floors of porches or exposed areas in buildings. Where a permanent foundation is not present, a concrete slab should be laid for this purpose. The dimensions of the slab are indicated in *Figure* 34, though a larger slab with or without anchoring piers may be placed in areas of exposure to high winds. If a step is required at the booth entrance, the slab should be made about 12 inches longer to provide an apron at the entrance. An antiskid floor plate may be used to cover the floor of the booth, if desired .

If the booth is assembled in the storeroom as instructed by the manufacturer, it will have cross braces and a wood skid attached to the bottom to maintain its shape and prevent damage in handling. The door is also blocked temporarily in position. This skid will be found convenient for marking the location of the booth mounting holes in the slab. The skid is removed by taking out the bolts and sliding it out from under the booth when the latter is ready to be installed.

The aluminum booth is designed to facilitate the placing of outside and inside wiring for the light and telephone connections. The electric wiring is handled by a local electrician qualified to do the work in accordance with the National Electrical Code and municipal regulations where these apply. Telephone wiring is installed in accordance with the telephone company's standard procedures.

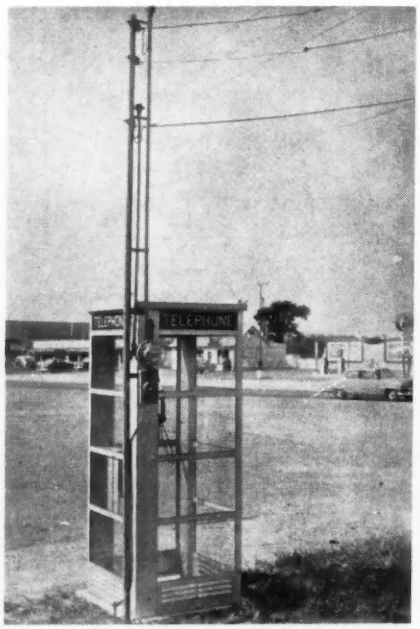


FIG. 36:—Reynolds Aluminum Outdoor Booth with utility service entrance mast. Note safety glass panels from top to bottom on all three sides of booth.

Where the outside wiring is not in conduit, the telephone drop wire is attached to the booth with a drop wire hook or an "S" knob on a corner bracket as suggested in *Figure* 35. Unless an outside type protector is placed, the drop enters directly through the entrance provided in the booth corner as illustrated. The direct attachment of open electric light wires to the booth is not encouraged as it is preferable that entrance of these wires be made through conduit. However, should it be desired to attach the power service wires to the booth, the power wire span should not be over 25 feet long.—*To Be Continued.*

Book Review

"*Fundamentals Of Transistors,*" by Leonard Krugman. The most popular economically priced text on transistors. Leonard Krugman, who wrote this authoritative book, is one of the pioneers in transistor development and application. His presentation covers every phase of basic transistor operation, characteristics, performance, and application. No complicated mathematics . . . it is clearly written so everyone can understand. Every equation has numerical examples. Cat. No. 160; 144 pages; 5½" x 8½"; soft cover; illustrated. Price $2.70. Order from *Educational Division, Telephone Engineer Publishing Corp., 7720 N. Sheridan Rd., Chicago 27, Ill.*

Smithsonian Exhibit Tells Story of Telephone

AN EXHIBIT which tells the story of the telephone was opened to the public last month at the Smithsonian Institution.

At ceremonies attended by telephone industry and Smithsonian officials, Dr. Melville Bell Grosvenor, president of the National Geographic Society and grandson of Alexander Graham Bell, cut a ribbon to formally open the exhibit.

James B. Morrison, president of the Chesapeake and Potomac Telephone Companies, and Leon F. Roberts, director of information for the United States Independent Telephone Association, presented the exhibit to the Smithsonian on behalf of the Bell System and the Independent telephone industry. Dr. Leonard Carmichael, Secretary of the Smithsonian, accepted for the museum.

Among those present were these members of a committee of the United States Independent Telephone Association which assisted in the preparation of the exhibit: Bruce Quisenberry, chairman; O. C. Bailey, F. W. Haupt, and R. B. Wiseman. Others in attendance in behalf of the Independents were Duane Swanson, vice president and general manager, Virginia Telephone & Telegraph Co.; Mervin Alexander, toll engineer, USITA; Ray Blain, Roland Davies, and Francis X. Welch. A large delegation of Bell officials included officers of the American Telephone & Telegraph Co., Bell Telephone Laboratories, the Chesapeake & Potomac Telephone Co., and Western Electric

Beginning with the "Galvanic music" with which Charles G. Page of Massachusetts startled the learned world in 1837, the story is carried through the most recent applications to telephony of electronic devices. Featured in the exhibit is the work of Alexander Graham Bell, including instruments that he presented to the Smithsonian a number of years ago, as well as reproductions of such curious apparatus as Bell's "human ear phonautograph," through which he learned of the power of sound waves to set relatively heavy objects into vibration. These and instruments from other inventors record the period of the birth of the telephone and the first appearance of systems of telephonic communication.

The transformation of the simple telephone circuit of 1880 into the world-wide network of today involved improvements in the manner of connecting caller to the receiver and in the improvement of the circuit to carry conversations in greater numbers to greater distances. Both of these have undergone a tremendous development through the use of the vacuum tube and other techniques familiarly associated with radio. This exhibit shows the development of switching systems from the early-day switchboard to the newest types of automatic switching systems.

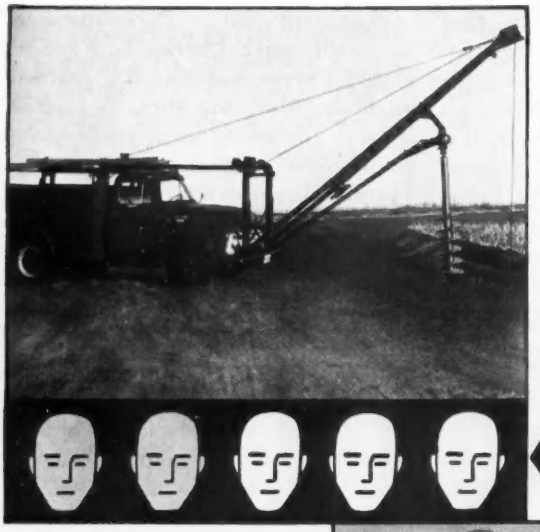
The new exhibit now open to the

SHOWN AT opening of telephone exhibit at Smithsonian Institution are (l to r):—DR. LEONARD CARMICHAEL, sec., Smithsonian Institution; LEON F. ROBERTS, director of information, U. S. Indep. Tel. Assn.; JAMES B. MORRISON, pres., The C. & P. Tel. Co's.; SANFORD B. COUSINS, v.p., AT&T Co.; ROBERT V. FLEMING, chairman, Executive Committee of Board of Regents, Smithsonian Institution, Director of C. & P.; DR. MELVILLE BELL GROSVENOR, pres., National Geographic Society, Director of C. & P., and a grandson of Alexander Graham Bell.

Tel-E-Lect's complete line of front operated equipment now enables utility companies to do twice the amount of work with smaller crews in just half the time. If you're still using 5-man crews on obsolete utility equipment (even on a new chassis), you have extra men on the payroll that can be making a profit for you on another job. Tel-E-Lect builds the services of three men into its utility truck equipment. Now, *two men* can do the work once done by five!

Adaptable to all makes of popular trucks, Tel-E-Lect quality-built front operated equipment is fast and versatile. The simplicity of operation of its winches, digger drive kits, FLD units, derricks, diggers and augers make them efficient and economical—require smaller crews to operate, thus freeing men for other jobs and for big, highline work.

After just *two minutes* on location, the digger and derrick are ready to go to work. Digger and derrick equipment are brought into working position by simply engaging winch line. The digger remains attached to the derrick and is raised or lowered by actuating a single lever in the cab. The load line is now available for pole setting. When digging in hard soil or frozen ground, the weight of the pole may be used as ballast for additional auger pressure.



Tel-E-Lect equipment saves three men out of five for other work.

These men are now available for other important jobs!

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public is located in the Smithsonian's Arts and Industries Building, 9th Street and Jefferson Drive, Washington, D. C.

Oregon-Wash. Tel. Co. Joins United Utilities

WADE H. DEAN, chairman and president of Oregon Washington Telephone Co., and Alden L. Hart, president and general manager of United Utilities, Inc., have announced decisions for the Oregon Washington Co., to become one of the principal units of the United Telephone System.

The Oregon Washington Telephone Co. serves over 21,000 telephone stations and an extensive toll network in the States of Oregon and Washington, with company headquarters at Hood River, Ore. The company was founded by Mr. Dean in 1907. Its growth has been attended by the major developments in the Columbia River and Columbia Basin regions. Most of its territory lies in the heart of this area and in the Hood River and Yakima Valleys.

United Utilities, Inc., has its headquarters in Kansas City, Mo. Its other operating units include 10 major telephone companies serving in 12 states on the east coast and in the middlewest. It embraces the second largest Independent telephone system in the United States and in addition owns certain power, gas, water, and propane companies also located in the middlewest.

Present management and operating personnel of the Oregon Washington Telephone Co. will remain unchanged. W. H. Dean is chairman of the board of directors; E. R. Dean will serve as president and general manager. They will continue to head up United System interests in the Pacific Northwest.

Other principal officers are Dean Willey, vice president; H. E. Wright, vice president, Yakima Valley; Z. O. Brooks, secretary, and R. A. Neilson, treasurer. A vacancy in the office of vice president created by E. R. Dean's advancement to the presidency of the corporation will be assumed by J. T. Naylor, executive of various United System companies and at one time a member of the staff of the Oregon Public Utilities Commissioner.

Illinois Bell Tells of "Struggle to Keep Pace"

ILLINOIS BELL Telephone Company's annual report tells of a "con-

stant struggle" to keep pace with a growing population which demands "dramatic quantities of telephones and equipment."

The report, mailed to stockholders last month, said suburban growth accounted for about half of the number of telephones added in 1956.

William V. Kahler, president, said Bell anticipates a need for almost $148 million in construction expenditures this year.

"Some $88 million will have to be obtained from outside the business . . ." Kahler said. "Tight money market or not, we have to get it if we're going to serve our home and business customers well."

Growth and modernization cost Illinois Bell $124 million in 1956.

Kahler said "higher expenses, led by taxes and payroll," tended to "arrest our current earnings progress."

Net income of $50,470,000 in 1956, equal to $9.66 a share, compared with net income in 1955 of $45,030,510, or $9.70 a share.

Operating revenues totaled about $416,520,000, up about 10 per cent compared with 1955. But operating expenses, including taxes, also went up about 10 per cent to a total of $360,901,000, Kahler said.

General of S. W. Announces Recent Rate Increases

THE FOLLOWING rate increases were granted General Telephone Co. of the Southwest during February, 1957:

Exchange	Effective	Old Rates	New Rates
Alta Loma, Texas	Feb. 3, 1957		
Dial — EAS	Bus.-1-Pty.	$10.00	$11.50
1012 Stations	2-Pty.	8.50	9.00
	Res.-1-Pty.	5.00	5.75
	2-Pty.	4.25	4.75
	4-Pty.	3.50	4.00
Robert Lee, Texas	Feb. 21, 1957		
Conversion to	Bus.-1-Pty.	7.50	9.50
Dial	2-Pty.	6.00	7.50
391 Stations	Res.-1-Pty.	4.50	4.75
	2-Pty.	3.50	4.00
	4-Pty.	—	3.50

REA Proposes New Equity Requiresments for Tel. Loans

THE RURAL Electrification Administration has outlined proposed changes in equity and security requirements which it is considering for rural telephone loans. The proposed policies were discussed by Administrator David A. Hamil in a talk before the annual meeting of the National Telephone Cooperative Association in Chicago on March 2. Mr. Hamil said that no effective date has been set for the changes.

The proposed policies are summarized as follows:

(1) *For commercial-type borrowers*:

(a) Commercial-type borrowers will be required to provide 10% equity as appraised by REA. They will normally be expected to raise any new equity funds required prior to the advance of loan funds. Where at least 50% of the required new equity funds is raised. REA may permit loan advances if the borrowers accept additional managerial controls in their mortgages whenever their net worth is less than 10%.

(b) For all new and supplemental loans the mortgage will prohibit payment of dividends or other distribution of net worth, if after such payments, net worth will be less than 10% of assets. These terms will be defined in the mortgage.

(c) Present borrowers who have raised at least 50% of required equity funds may obtain loan advances if

Please turn to page 62

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TICKS-OFF
INSECT REPELLENT BOMB
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- Profitable noise
- Wire saves poles
- Plastic armor
- Quick and easy
- Underground winner

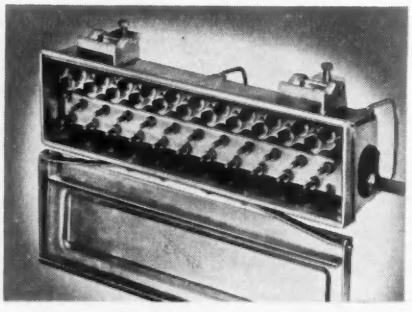
Published regularly to help you get the most out of your materials and supplies dollar

by Philip W. Blood, Office Mgr. and Inside Sales–Pacific Coast

In my 14 years with Stromberg-Carlson I've come to know the careful attention paid to supply orders like yours. When you order equipment from Stromberg-Carlson, **everybody** makes sure it's right. First, the manufacturer. He produces a long-lived product and his good name comes with it. And then Stromberg-Carlson—in delivering the product to you—gives you a guarantee backed by our 62-year reputation. So you get your money's worth for day-to-day operations—and you invest something in the future, because it's your supply business that plays a major part in helping us continue our research for new and better telephone equipment. It's business we certainly appreciate—thanks a million for your continued support!

Terminal with New Protector

Now get more dependable protection than ever for station or cable—with Reliable Electric Company's strand mounted terminals.



Precision manufactured terminals of highest quality

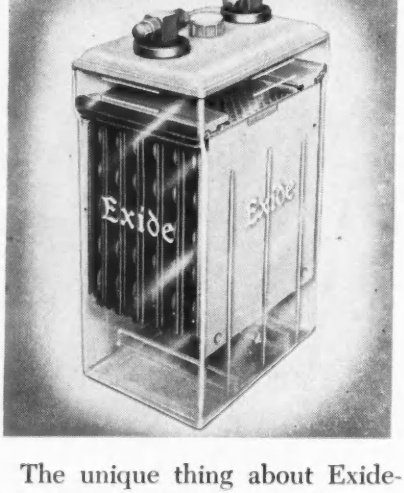
These terminals are equipped with the new Reliable Fuseless Protector Unit, which dissipates static discharges across elements to ground.

Another important feature is that the silicon bronze binding posts on which cable stubs are terminated are sealed with the wires in a glass-reinforced polyester resin of exceptionally high dielectric qualities.

Surface leakage is minimized or completely eliminated by 1-1/16" spacing of binding posts.

Reserve lead keeps battery young

Inside the unique lead buttons in an Exide-Manchex positive plate there's a coil of reserve lead designed to prolong battery life. Over the years, as this lead is needed, it goes into action, instantly and automatically.



The unique thing about Exide-Manchex construction is that the reserve lead does not have to support the plate. The spiral lead buttons are tightly locked into a cast lead-antimony alloy grid several times more rigid than pure lead. Hence the reserve lead can be completely consumed while the plate retains its strength.

Only Exide-Manchex Batteries have this construction. In addition, they feature a plastic jar that saves weight and space, high level electrolyte for less frequent filling, and huge bottom reservoir that virtually insures against sediment shorts.

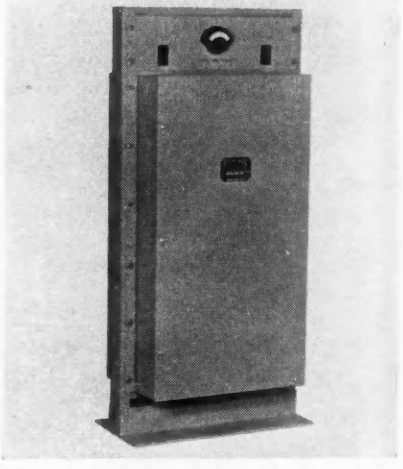
Battery charger maintains constant voltage within ± 1%

To keep your batteries in good operating condition, and to prevent their deterioration, you need a **steady** charging voltage.

The Flotrol single-phase battery charger is an entirely automatic charger of the floating charge type. It provides an output voltage that is constant within ± 1%, from 10% of its rated load to 100%.

You save on maintenance, because the Flotrol has no moving parts. Its regulation is controlled by saturable magnetic reactors.

If overloaded, the Flotrol automatically changes from a constant voltage-type charger to a constant current-type charger. This protects both the battery and the Flotrol itself.



Quiet, efficient Model 1200-B Flotrol.

Compensation for variation in input voltage is automatic and practically instantaneous.

The operation of the Flotrol does not depend on the use of tubes, relays, motors or other expendable equipment.

For efficiency and economy, ask your Stromberg-Carlson representative about the Flotrol single-phase constant voltage charger.

Distribution wire needs no cross arms

There are several reasons you can enjoy lower installing costs with this Whitney Blake multi-pair distribution wire.

Because it's self-supporting, it needs no cross arms. And it's easy to string because it's lightweight and comes in long lengths—up to 4000 feet per reel.

Self-supporting distribution wire has built-in messenger.

This wire has excellent electrical characteristics: low-loss transmission, low capacitance, high dielectric strength.

Its polyethylene insulation provides excellent weather resistance.

The wire is available in 3, 6, 11 and 16 pairs. The conductors are of #19 A.W.G. soft copper.

Your Stromberg-Carlson representative will gladly introduce you to the economy of this wire. Call him.

Noise can be money!

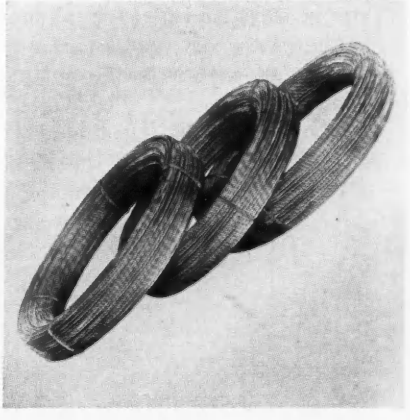
Take a business subscriber who has a telephone in some extremely noisy location—and who has finally decided to do something about it. Would you rather have him spend money in building a soundproofed booth—or give **you** the money as monthly income on a telephone which completely licks the noise problem?

The GAI-PHONE is such an instrument. It has a special transmitter that actually creates a "Zone of Quiet" around the handset—even in a spot as noisy as a boiler factory! It costs the subscriber **less** than a

booth—and you get the revenue! Ask us for complete details.

Save 10-15 poles per mile

A net saving of 10 to 15 or more pole structures per mile is possible where **Crapo** High-Tensile Telephone Line Wire is used in long-span construction. Fewer pole structures mean substantial savings in time, labor and material, and in maintenance.



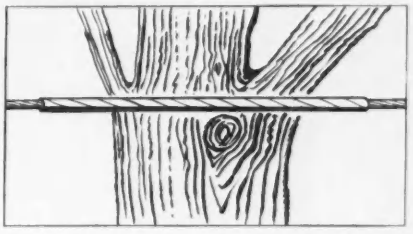
Crapo HTL-135 makes possible spans of 350 feet in heavy, 450 feet in medium, and 500 feet in light loading areas. Its practical economy should be considered for new extensions and where old lines are to be replaced.

Crapo HTL-85 (No. 12 B. W. G.) permits spans of 225 feet in heavy, 325 feet in medium, and 375 feet in light loading districts; provides stronger spans on existing pole structures. Both wires possess superior telephonic transmission qualities.

Long-lasting protection at low cost

You get effective, long-lasting, inexpensive protection of covered cables or conductors with Preformed Plastic Line Guards.

Easily installed by hand, these line guards protect against abrasion by trees, buildings and other obstructions. They fit as securely as metal line guards.



Standard stock sizes in 6-foot lengths. Other lengths available on order.

PLP Plastic Line Guards are available from stock in standard 6-foot lengths. Or you may order them in 3-foot, 9-foot and other sizes.

Your Stromberg-Carlson representative can offer prompt delivery on your order.

Time and Money Saver

You'll find Cook PLX Cable Terminal the quickest, easiest and most economical to install because there's no stubbing, no splicing, no potting.

Available in 6, 11, 16 and 26 pairs

It's designed for use on plastic cable. You loop the cable through the terminal without cutting wires and terminate the desired pairs for distribution. You can also use the terminal for junctioning and terminating cable.

(Continued on Page 62)

(Concluded from Page 61)

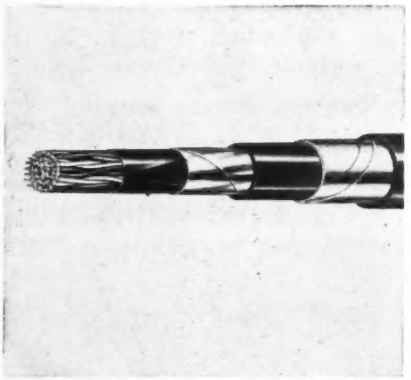
construction and maintenance digest

Grommets are furnished to seal the cable entrance. When ordering, specify cable sizes to get the correct grommets.

Heavy galvanized steel frame, deep drawn chamber, welded zinc cover and the famous XB Bakelite face plate with Everdur studs are some of the major features of the Cook Electric Company's PLX Cable Terminal. It can be furnished with or without protection.

Cable that can take it

This Ansonia Wire & Cable Company product offers finer electrical characteristics than any other comparable cable.



Available in 24, 22 and 19 gauge, 11 through 404 pair

If you want direct burial cable that stands up under severe ground conditions, order Ansonia Type 775-AP Cable.

Its individually insulated conductors are paired and cabled with a covering of aluminum tape, a plasticized jacket, plus a butt-lapped, stagger-jointed, flat armor tape and a second overall jacket of plasticized polyvinyl chloride.

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(Continued from page 59)

they accept a supplemental mortgage containing the dividend restrictions and other managerial controls.

(2) *For non-profit borrowers*:

(a) Non-profit type borrowers will be required, prior to the loan, to have existing subscribers and signed applicants amounting to at least 70% of the 5-year subscriber estimate and to collect $10 for each unserved signed applicant.

(b) For all new and supplemental loans the mortgages will include managerial controls and restrictions on any distribution of net worth if, after such distribution, net worth will be less than 10% of assets. These terms will be defined in the mortgage.

(c) Present borrowers having difficulty raising equity may (1) request waiver of the requirement of raising the remaining equity and in lieu thereof accept the mortgage provisions of "b", or (2) request approval of a time payment plan of raising the remaining equity.

Peninsular Tel. Reports New "Highs" For '56

THE METEORIC rise in Florida's population and industrial development brought about a doubling in size of the Peninsular Telephone Co. in the past seven years. This was revealed last month in the company's annual report.

The number of telephones served at the close of last year was 292,000, a 100 per cent increase over the 1949 year-end figure. An all-time high of $19 million in new construction was completed and placed in service in 1956. Gross construction in the 11 postwar years has amounted to over $97 million.

In referring to the prospects of an even larger budget for 1957, President Carl D. Brorein said, "Continued construction is required to keep abreast of increasing service demands and to provide needed plant margins for the future."

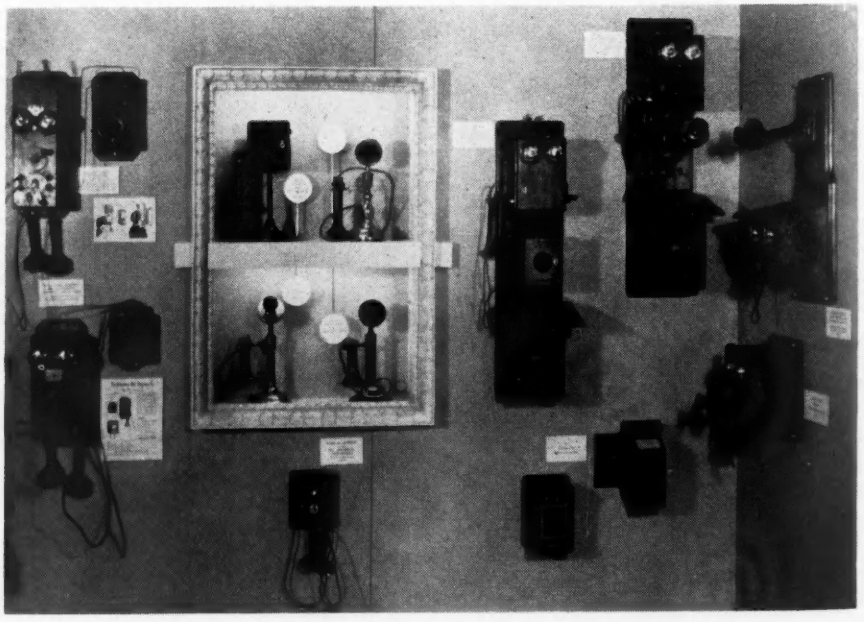
The average investment per telephone at the end of 1956 was $292, making a total plant value of over $85 million. A substantial proportion of this is in relatively new equipment and buildings.

Employes reached a new high of 3,000 on December 31, 1956, and payroll for the year amounted to more than $10 million. The company reports it has never experienced a strike or a work stoppage.

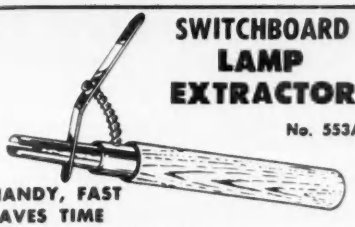
Revenues totaled almost $22 million for the year. A recent rate revision did not become effective until the first of this year, so earnings per share of common stock were down slightly. A $1.80 dividend was paid during 1956.

General Waterworks Unit Buys Telephone Properties

A GENERAL Waterworks Corp. subsidiary, Iowa-Illinois Telephone Co., has purchased properties from Central Telephone Co. serving 7,000 telephone customers in Iowa and



ABOVE PHOTO shows part of telephone exhibit which was opened recently at the Smithsonian Institution.



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North Dakota, according to Howard Butcher III, president of the parent company.

He said the purchase was financed with part of a $5,667,000 loan authorized by the Rural Electrification Administration for the Iowa-Illinois concern.

Kansas Commission OK's Sale of Osage Tel. Co.

THE KANSAS Corporation Commission has authorized W.E.G. Dial Telephone, Inc., Gardner, Kans., to buy the Osage Telephone Co., Osage City, Kans.

The authorization included issuing $111,000 in preferred stock to buy the company for $105,000 and to keep $6,000 for working capital.

The KCC also told Wilson Telephone Co., Wilson, Kans., it could purchase Vesper Telephone Co., Vesper, for $3,000.

It also granted the Grainfield Telephone Company, Grainfield, Kans., permission to issue $10,000 in preferred stock to pay for improving its system.

The KCC also adopted the latest edition of the National Electrical Safety Code in its order revising rules and regulations for stringing electrical and telephone wires along and over highways and railroads.

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BOOTHS—Acoustic Telephones — *Sherron Metallic Corp., 1202 Flushing Ave., Brooklyn 6, N. Y.*—[ADV. 3]

BORING MACHINES, EARTH — *Highway Trailer Co., Edgerton, Wis.*—[ADV. 4]

CORDS, Switchboard (with or without plugs), Instrument (retractable and regular) and Operators — *Commercial Cord & Supply Co., Inc., 26 Main St., Clifton Springs, N. Y.*—[ADV. 5]

CORDS, Switchboard & Telephone — *Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.*—[ADV. 6]

INSULATORS, Porcelain — *Porcelain Products, Inc., Box 300, Findlay, Ohio.*—[ADV. 7]

PIPE PUSHERS — *Giant Manufacturing Co., South 6th St., at 12th Ave., Council Bluffs, Iowa.*—[ADV. 8]

POLES, Southern Yellow Pine — *Taylor Colquitt Company, 217 E. Main St., Spartanburgh, S. C.*—[ADV. 9]

POLES, Southern Yellow Pine — *Texas Creosoting Co., Orange, Texas.*—[ADV. 10]

PROTECTIVE EQUIPMENT — *Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.*—[ADV. 11]

REBUILT TELEPHONES & SWITCHBOARDS — *Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 26, Ill.*—[ADV. 12]

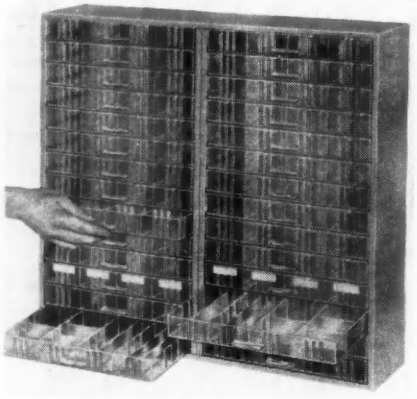
WIRE, Insulated — DATED DROP WIRE — Neoprene or Weatherproof — *Alphaduct Wire & Cable Co., New Brunswick, N. J.*—[ADV. 13]

WIRE, Insulated Drop and Bronze of Copperweld — *Acorn Insulated Wire Co., Inc., 36 Freeman St. Pawtucket, R. I.*—[ADV. 14]

A TEM & Service Department

NEW PRODUCTS

IN THIS ISSUE our New Product editor describes and offers free information on — (1) a new 112-drawer storage unit; (2) a new high quality, flat-plate type battery for the telephone industry; (3) a new, sensitive RF voltmeter; and (4) a new hollow-wall anchor.



Storage Unit

AKRO-MILS, INC., has announced the addition of a new 112-drawer model to its line of "E-Z Find Full Vue" Storage Units. The 112-drawer model cabinet will hold the hundreds of different small parts. It provides maximum visibility and space economy. Clear plastic drawers make visual selection possible. Occupies about one-tenth the space of ordinary storage methods. Contents of cabinet are kept clean, neat, orderly and indexed. For complete data, *Check New Product* 124.

New Telephone Battery

A NEW HIGH quality flat-plate-type battery for the telephone industry has been developed and made available at moderate cost by Exide Industrial Division of The Electric Storage Battery Co.

Positive plates of the new EWA battery are a blend of lead-antimony and Silvium, Exide's patented alloy of lead, silver and other metals. The jar and cover are made of lightweight, heat resistant, shock-absorbent polystyrene.

By adding Silvium to lead-antimony for the positive plates, Exide assures long battery life and protection against corrosive damage caused by overcharging. Silvium has the highest resistance to electrolytic corrosion of any battery grid alloy yet developed.

Leak-proof construction is accomplished by permanently bonding the plastic cover to the jar. Seal nuts and gaskets prevent seepage around the heavy, square terminal posts.

EWA elements are suspended from ledges molded within the jar walls. Molded ribs at the bottom of the jar support the separators and position the negative plates.

Heavy negative plates of the Exide EWA telephone battery, as assembled

with the Silvium-lead-antimony positives, are designed to give balanced plate life and peak performance.

Highly resistant to chemical and electrolytic action within the cell, ribbed microporous separators and spun glass Vitrex retainers insulate the EWA battery plates.

Uniform, high porosity of the separators permits free passage of electrolyte to assure delivery of high rates of current at maximum voltage. The retainers hold the active material firmly in place at the grids, assuring long,trouble-free operation.

The EWA battery cell is equipped with Exide explosion-proof gas baffle, cylinder vent and plastic vent plug. The cylinder vent will accommodate a pilot cell hydrometer. For convenience in maintenance, electrolyte level lines are marked on all four sides of the jar.

The battery is available in two or three-cell containers with 180 ampere-hour capacities and in single-cell assemblies with capacities ranging from 240 to 660 ampere-hours — all at the eight-hour discharge rate. It is supplied either filled and charged.— For Complete Data, *Check New Product* 125.

RF Voltmeter

THE NEW 91B Sensitive RF Voltmeter features improved frequency range, sensitivity, and stability. This instrument now covers from 0.2 MC to 500 MC and is useful up to 1000 MC with reduced accuracy. Although the voltage calibration extends from .001 volt to 3 volts, the high order of zero stability and sensitivity permits detection of signal levels as low as 400 microvolts.

The new 91-B RF voltmeter.

Two probes are supplied with each meter, one for general purpose high impedance work, the other a low VSWR 50 ohm probe for attaining maximum accuracy in monitoring high frequency coaxial systems. Each probe contains a full wave diode detector approaching RMS response at levels below 0.1 volt.

The unique combination of wide frequency response, high sensitivity, stability and ruggedness, plus ease of operation, permits application where expensive tuned amplifier or bolometer type instruments would normally be required. For further information, *Check New Product* 126.

Diamond's new "Wing-Ding" hollow wall anchor.

Hollow Wall Anchors

DIAMOND EXPANSION BOLT CO., has announced the new "Wing-Ding" Hollow Wall Anchor, designed with these exclusive features: — One size for all average walls; smallest size hole of any hollow wall anchor (use standard 1/4" drill); positive setting with tri-prong action; strong, one-piece, tripod design; easy to install, no special tools required; and installs on 1/2" centers.

To obtain complete information. *Check New Product* 127.

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CABLE SPLICERS, Station Installers, Equipment Installers, Linemen. Experienced men needed. Steady work, good pay. Henkels & McCoy, 1211 Kenmore Avenue, Elkhart, Indiana, or 6100 N. 20th St., Philadelphia, Pa.

PLANT ENGINEERS — For large Independent Telephone Company. Some experience necessary. In reply state age, educational and employment history. Address reply to Personnel Supervisor, Rochester Telephone Corporation, 10 Franklin Street, Rochester 4, New York.

HELP WANTED: "Revenue Accounting Supervisor for Class A telephone company operating 16 exchanges in Northern Illinois. Salary commensurate with experience and ability. Ample oportunity for advancement. Employe pension and benefit plan in effect. Address reply to Mr. K. L. Schroeder, Northwestern Telephone Company, 304 West Main Street, Freeport, Illinois.

SITUATION WANTED

SITUATION WANTED: TRAFFIC ENGINEER, college graduate, six years experience with Class A telephone company, desires relocation and traffic supervisor position. Experienced in toll separation studies (USITA), equipment and toll line engineering, supervision of people, and all phases of traffic department functions. Reply Box 9061 Telephone Engineer Publ. Corp., 7720 N. Sheridan Rd., Chicago 26, Illinois.

POSITION WANTED: Have 30 years experience in Office Management, Purchasing and sale of Telephones and Telephone Supplies. Can furnish first class references, will relocate. Address Box 9063, Telephone Engineer Publishing Corp., 7720 North Sheridan Road, Chicago 26, Illinois.

SITUATION WANTED: Competent Communications Consultant wishes change in location. Over twenty years of experience in all types of telephone equipment, private wire equipment, and installations with considerable commercial sales experience. Reply to Box 9062, Telephone Engineer Publishing Corporation, 7720 North Sheridan Road, Chicago 26, Illinois.

WANTED TO BUY

WANTED TO BUY: Class C Telephone Company Controlling interest up to 100%. All replies strictly confidential. Write: Box 9060 Telephone Engineer Publ. Corp. 7720 N. Sheridan Road, Chicago 26, Illinois.

FOR SALE

FOR SALE: Almost new Stromberg-Carlson Switchboard in service less than five years. 2 pos. x 106 junior multiple, machine ringing, equipped with 220 C B Local lines, 60 lampended rural lines, 20 lamp ended toll lines, 30 (4) party universal cord circuits 48 volts, complete with line relay rack, power panel, S. C. Multi frequency interrupter, emergency converter, main frame with Cook #100 protectors, Batteries and #150-B-3 amp Flotrol charger.

Augusta Telephone Co.
Augusta, Michigan

FOR SALE: Stromberg 2 position 106 non-mult. switchboard, equipped with 120 C. B., 60 Mag. & 10 trunk lines, 24 Universal cord circuits with dial, #33 calculagraph, 3 amp charger, 11 cell 72 hr. battery. New in 1950, just removed from service. For information contact Molalla Telephone Company, Molalla, Oregon.

FOR SALE: Kellogg Universal Switchboard, four position complete with cord circuit and common equipment, 480 line and cut off relays, 60 universal lines. MDF with 570 line of protectors 29 terminal blocks. 2 5 Frequency Pole Changers. 1 Transformer set. 1 Flotrol, 24 volt, 6 amp charger. 1 Power Board. Switchboard Cable, Operator Chairs and operator sets. 300 Kellogg CB Telephones. For Quick Sale.

Citizens Telephone Co.
110 W. Washington St.,
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WESTERN ELECTRIC NO. 392 LOUD BELLS
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9 - D-235929-D circuit H-58-549-7 10 party local connector
4 - D-23651-8-H circuit H-580051-5H 10 party combination toll and local connector
Shelf wiring diagram H-72202
15 ea. A.E. Co D-858082-A circuit H-61797 composite repeaters
8 ea. A.E. Co D-856599-A circuit H-61238X simplex repeaters
2 ea. A.E. Co H-857206-M circuit H-61599 repeaters
6 ea. A.E. Co circuit H-70279 repeaters - relay rack (23 inch) mounting
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Ephrata, Pennsylvania

Verne B. Clark Dies

VERNE B. CLARK, 55, Fort Dodge, Ia., division manager for the Central Telephone Co., and veteran member of the telephone industry, died of a heart attack in his sleep March 12. His wife found him dead about 7 a.m. March 13 at their home.

Born on May 5, 1901, at Linneus, Mo., Mr. Clark attended school there. He became associated with the Central Telephone Co., in Missouri 28 years ago. He worked for the firm in Sioux City for a time, later transferring to Charlottesville, Va., for a number of years. Returning to Sioux City for several years, he then went to Pekin, Ill., as district manager for the Middle States Telephone Co., a subsidiary of the Central company. From Pekin he was transferred to Sioux Falls, S. D. and later to Lincoln, Neb., where he was in the company's general office. He transferred to Fort Dodge as the company's division manager in November of 1954.

VERNE B. CLARK, 55, Fort Dodge, Ia., dies of a heart attack on March 12.

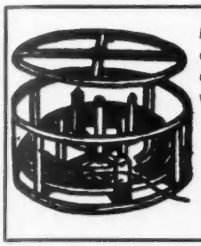
He was a member of the Fort Dodge Chamber of Commerce and, at the time of his death, was a member of that organization's board of directors. He was also a member of the Rotary club, Elks club, and the First Methodist Church.

Surviving Mr. Clark, in addition to his widow, Frances, are: a daughter, Mrs. William Hill, Lincoln, Neb.; a son, John Winfield Clark, a student at the University of Nebraska, Lincoln; his mother, Mrs. Ebba Clark, Ames, Ia.; and two sisters, Mrs. Carlyle Gauger of Nevada, Ia., and Miss Hester Clark of Fort Wayne, Ind.

C & D Batteries Adds New Project Engineer

C & D BATTERIES, INC., Conshohocken, Pa., has announced that Charles P. Michalski has joined C & D's staff of project engineers. He comes to C & D following a thirty-year association with Gould Batteries, Inc.

Mr. Michalski joined Gould in 1926, starting as a mail boy, office boy, and blueprint boy. As he advanced, his assignments gave him an ever broadening background in manufacturing, drafting, laboratory work, quality control, research, and developmental and experimental design. This led to the position of services and sales instructor.



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Whitaker Reel Mfg. Co.

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USE TELEPHONE ENGINEER AND MANAGEMENT'S CLEARING HOUSE
To locate workers—jobs—merchandise.
A small ad covers the field.

UNITED UTILITIES, INCORPORATED

48th Consecutive Dividend

The Board of Directors declared a quarterly dividend of 30 cents per share on the outstanding common capital stock of the company, payable on or before March 31, 1957, to stockholders of record at the close of business March 12, 1957.

Abilene, Kans.
March 6, 1957

ALDEN L HART,
President

SWITCHBOARDS

KELLOGG No. 2007 Cordless PBX (Masterbuilt Type). 5 Trunks, 20 Stations, 5 Connecting Circuits with line relays.

KELLOGG No. 1007 Cordless PBX (Masterbuilt Type). 5 Trunks, 12 Stations, 5 Connecting Circuits with line relays.

KELLOGG No. 1007 Cordless PBX (Masterbuilt Type). 3 Trunks, 10 Stations, 5 Connecting Circuits less line relays.

STROMBERG-CARLSON No. 125 Magneto Switchboard (Late Type). Equipped with 40 Lines and 7 Cord Pairs with repeating coils.

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ALPHADUCT DROP WIRE carton packaging

saves you time and money

- easier to handle
- easier to inventory
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Once you start using Alphaduct Drop Wire you will find out that the handy carton packaging has real dollars and cents advantages.

Not only does your wire arrive in perfect condition, but the sturdy carton protects it all the while it's in your warehouse.

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We try to make Alphaduct the finest, longest lasting drop wire money can buy. Quality materials are used throughout, step-testing during every phase of manufacture assures uniform high standards. Alphaduct drop wire is dated with a color coded thread so you can tell for sure how long it lasts.

Try Alphaduct Drop Wire

ALPHADUCT WIRE AND CABLE COMPANY • NEW BRUNSWICK, N.J. NATIONAL DISTRIBUTORS • AUTOMATIC ELECTRIC SALES CORP., CHICAGO, ILLINOIS • LEICH SALES CORPORATION, CHICAGO, ILLINOIS. REGIONAL DISTRIBUTORS • PANKEY SUPPLY CO., CHARLOTTESVLLE, VA. THE LINDSAY TELEPHONE SUPPLY CO., CLEVELAND, OHIO

R. T. Beall Designated Assistant REA Administrator

ROBERT T. BEALL has been designated acting assistant administrator for administration in a realignment of functions within the Rural Electrification Administration, the U. S. Department of Agriculture has announced.

REA Administrator David A. Hamil said that two organization changes have been made "for administrative efficiency and maximum support of efforts to extend and improve electric and telephone service in rural areas." These are:

(1) Creation of the new position of Assistant Administrator for Administration to supervise and direct the four present administrative staff divisions — Administrative, Administrative and Loan Accounting, Information Services, and Personnel.

(2) The responsibilities of two present positions of Assistant Administrator for program activities, in the Office of the Administrator, have been enlarged so that either assistant administrator will direct all program activities when the other is absent. J. K. O'Shaughnessy directs the telephone program and R. G. Zook the electrification program.

A & M Telephone Co. Completes Mansfield Cutover

THE FIRST long distance telephone call over the new Mansfield, Mo. dial system was put in to Congressman Charles Brown and his administrative assistant, Dale Freeman, Washington, D. C.

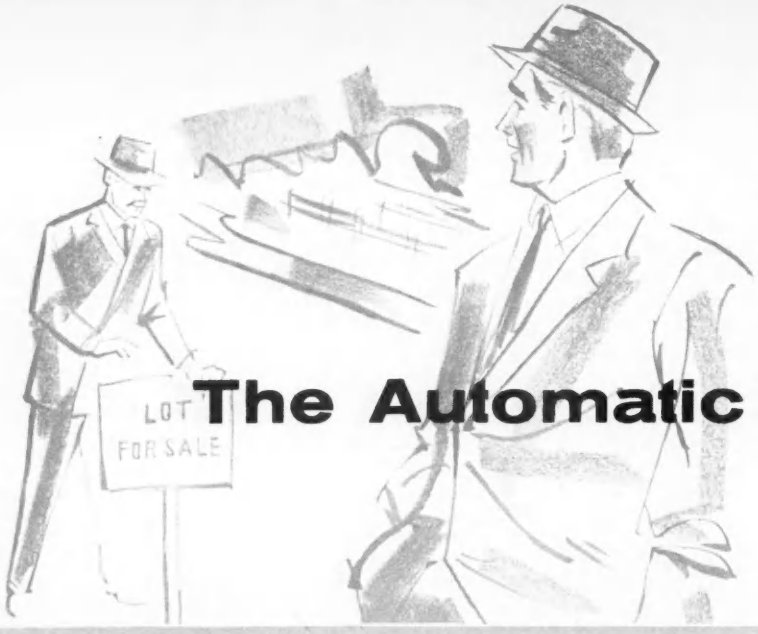
Calling from the Lions Hall at a gathering of officials of the A. and M. Telephone Co. and several businessmen, Mayor G. C. Freeman had the honor of making the first dial call on the system.

Among those present besides the businessmen were James Nease, manager of the Southwestern Bell Telephone Co., and W. A. Miller, assistant connecting agent for the Southwestern Bell Telephone Co., Springfield; A. H. Kroon and Gene Box, representing the Automatic Electric Sales Corp., Chicago; J. D. Groggin and George Griffin, representing Graybar Electric Co., Springfield; Doug Allen, who had charge of the installation of equipment; J. L. Gray, local manager, and Merle Sargent, Humansville, who was in charge of construction.

AUTOMATIC ELECTRIC TOPICS

APRIL 1957
VOLUME 21
NO. 10

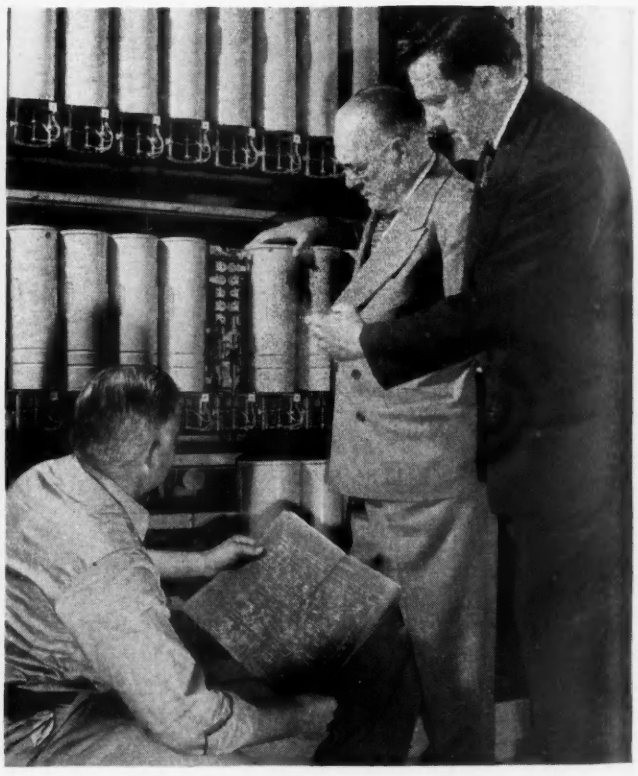
AE's Engineers Go All Out to Help Telephone Man "Go Dial"
(see next page).



Mr. Jones "Goes Dial" The Automatic Electric Way

Many telephone men who want to "go dial" may be somewhat hesitant because they don't have a clear idea of everything involved. That's where Automatic Electric's engineers can help. From pre-planning to post-installation they stay on the job to be sure equipment is right—just right—for each exchange ordered from Automatic. This story is an example of what they can do. Chances are no one will need all the help mentioned, but any that is needed may be had for the asking.

A team of skilled, practical engineers design equipment and select circuits that are right—just right—for every Strowger Automatic exchange.



Automatic's operating engineers check out installation. They also can train company personnel in maintenance and provide other services to "smooth out" conversion.

Mr. Jones knew what the telephone business was all about. After all, he had been in it long enough. But when he wanted to "go dial," he found that there were some problems he hadn't faced before. Then he talked to the Automatic Electric salesman, and the salesman asked a staff engineer to call on Mr. Jones.

Mr. Jones fired question after question at the engineer, and received prompt, practical answers. They went over a tentative plan together, and Mr. Jones brightened as the engineer explained many things he had not thought of. He wasn't quick to accept this man as an expert on conversions to dial—but he *did* when they completed their preliminary outline.

Then they really went to work. They made a traffic survey, and studied growth potential to see just how much switching equipment would be needed now and in the future. The engineer even helped select a building site—and recommended that the building be constructed so that one wall could be taken out for expansion.

As more problems came up, the engineer helped Mr. Jones. He assisted in setting up a new rate structure, and advised him how to file for new rates. The engineer suggested the most economical and efficient manner for handling toll traffic, explained the advantages of both terminal-per-station and terminal-per-line, considered the advisability of "2-5" selectors and Strowger Automatic Toll Ticketing. He noted the number of wiring plans in service and made provision for necessary P-A-B-X trunks.

"How about subscriber growth?" asked Mr. Jones.

"We thought of that, too," said the engineer. "You'll have plenty of extra switch banks. After these are filled, simply add more shelves. O.K.?"

Mr. Jones was delighted.

As days passed, the plans were discussed to completion. A short time later, the Automatic salesman handed Mr. Jones comprehensive specifications with every conceivable factor of dial conversion included. There was no obligation. Mr. Jones could study—then reject or approve.

Not long afterward Mr. Jones called Automatic. "Guess we better get going," he said, convinced.

When Mr. Jones' contract arrived at Automatic's engineering department in Chicago, a team of skilled, practical engineers went to work on his order. They checked the latest developments from the research laboratories serving Automatic, to be sure all modern features would be included in the equipment. Then they drew on engineering knowledge gained by Automatic through 60 years of exchange building, and selected the proved circuits they knew would be best for Mr. Jones. They planned for the future, too, designing equipment so that changes could be made simply and economically.

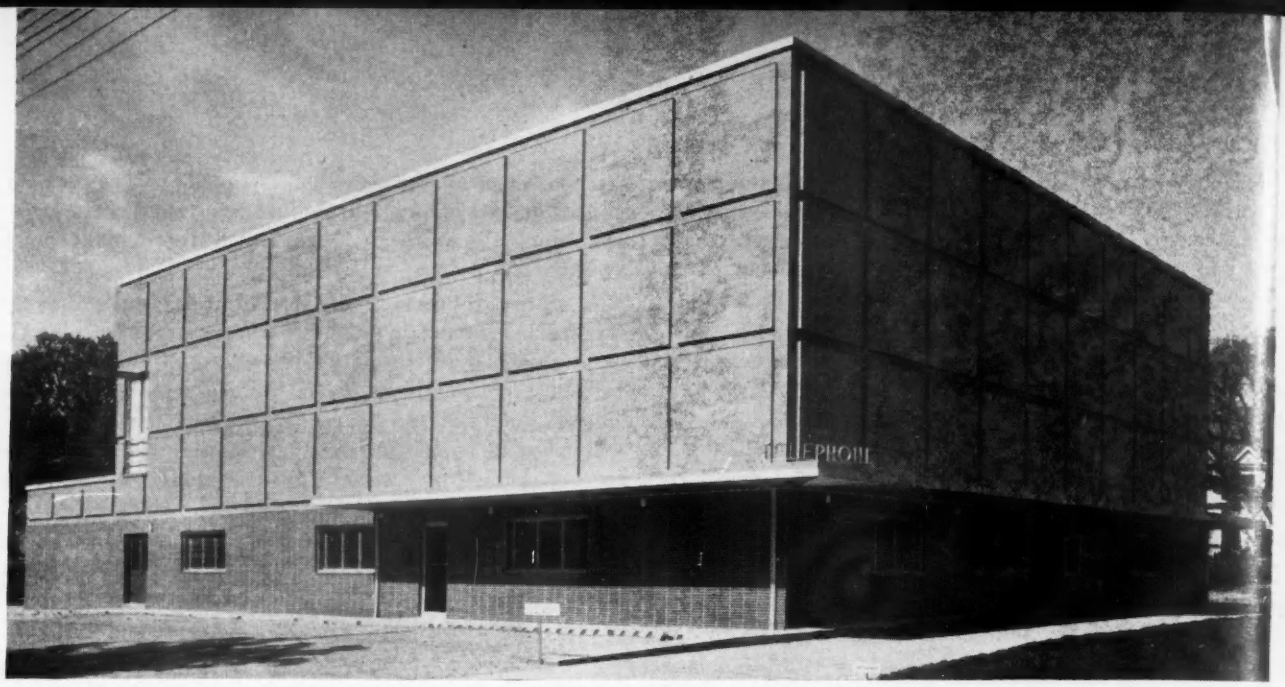
Then the order went into the factory—and years of experience in building dial exchanges benefited Mr. Jones there, too. Checked and re-checked, inspected and tested under rigid control, the dial exchange produced was one that was built to last, guaranteed dependable.

Mr. Jones' cutover day was a great success. Friends admired the smooth operation, the precise "click, click, click," as calls came rushing through the exchange. Mr. Jones beamed, justifiably, grateful to Automatic's operating engineers who had helped this day be a success. They had supervised the installation of the equipment, tested it, helped set up a new number record, and a new directory—even brought in experts to plan speedier billing.

They prepared routining instructions and charts, trained company personnel in maintenance, made peg counts and analyzed the results, and suggested outside cabling plans. They also discussed methods of handling service problems. And they were on hand to help during the cutover.

Mr. Jones felt like a school boy as he whistled his way homeward. His cutover was a success, and he knew he could still count on the help of Automatic's friendly engineers, always willing and ready to come to his aid.

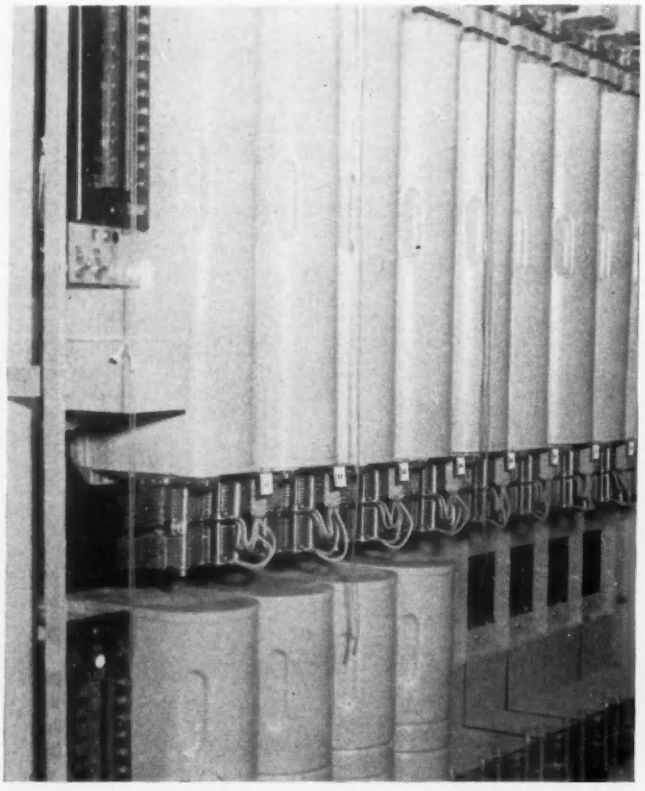
Operating engineers can even offer to bring in experts to help plan a speedier billing system.



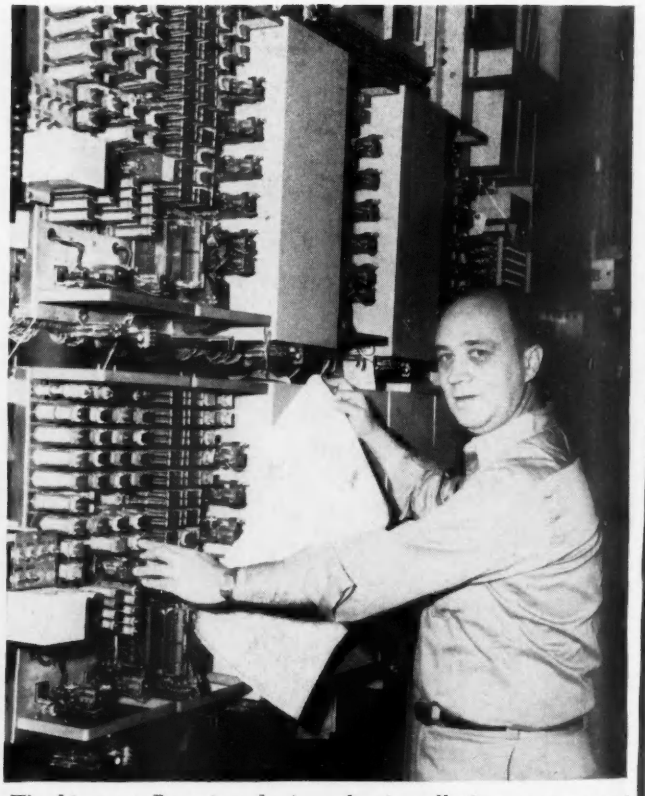
Lincoln Telephone and Telegraph Company's new Beatrice exchange will be the first in Nebraska to provide Direct Distance Dialing. Type BD Strowger Automatic Toll Ticketing equipment will enable subscribers to dial direct to 35 exchanges, serving some 250,000 telephones in southeast Nebraska.

Lincoln Telephone and Telegraph Co.

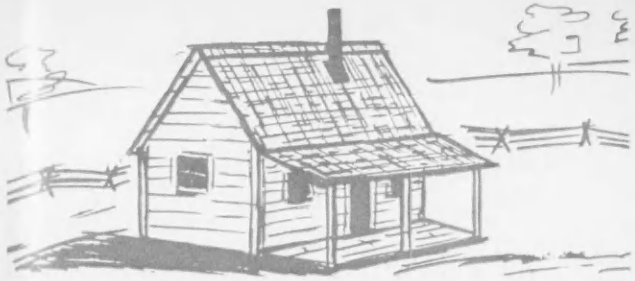
First with DDD in Nebraska



SATT ticketer selector-repeaters select the proper toll-circuit group to route the subscriber-dialed toll calls through the Lincoln Company's network.



Working at Beatrice during the installation was expert switchman Lambert Eitel of LT&T. Here he checks SATT transender equipment against engineering plans.



Site of the first U. S. homestead granted under the Homestead Act of 1862, Beatrice, Nebraska, is in line for a modern-day "first," too. It will be the first exchange in Nebraska to offer Direct Distance Dialing. The installation of Strowger Automatic Toll Ticketing (SATT) equipment at Beatrice is but a part of a new program embarked on by Lincoln Telephone and Telegraph Company. SATT equipment is also scheduled to be installed in exchanges to be cut over at David City and Wahoo.

Additional plans of the Company call for conversion to Strowger Automatic dial equipment in its remaining manual exchanges, so that it will have 100% dial service by 1962. Currently the company is engaged in converting 10,000 stations to dial operations at major exchanges at Beatrice, Wahoo, David City and Ashland. Exchanges at Tamora, with 156 subscribers, and Dunbar, with 286 subscribers, were recently converted, and work has begun on conversion of ten other exchanges to automatic operation. All of the new dial equipment will incorporate selective ringing for rural customers.

Beatrice, Wahoo and David City subscribers will be able to dial direct to 35 exchanges, serving some 250,000 telephones in southeast Nebraska. Eventually they will be able to dial any telephone in the United States, when the DDD system becomes complete.

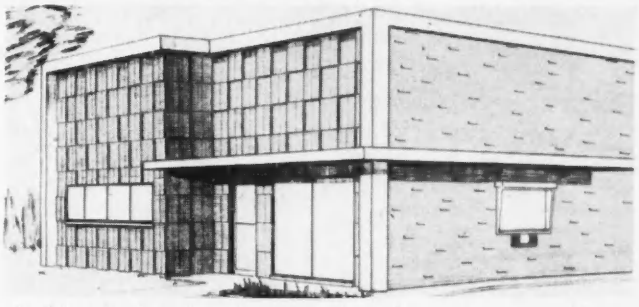
The SATT equipment at Beatrice is Type BD, which incorporates features of both Types B and D. Business subscribers will have access to Type B SATT, calling for the dialing of a special code number to reach the SATT equipment and then the number of the party being called. The calling number is automatically identified by the equipment, which then routes the call to its completion.

Residence and rural subscribers also will dial a special access code to reach the Type D SATT equipment, and then dial the number of the telephone they wish to reach. The equipment then calls in an operator who will take the calling number and key it into the ticketer; finally it routes the call to its conclusion.

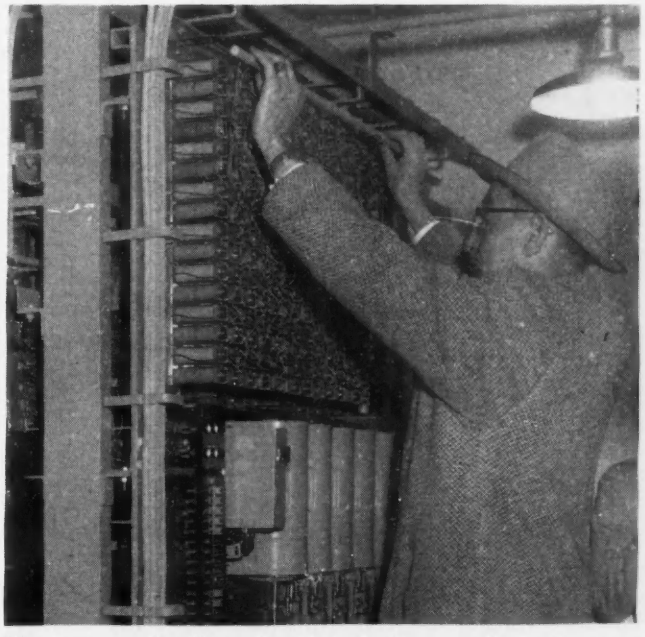
Installation of the new equipment at Beatrice is nearing completion, and the business office is already occupied. It features a drive-in payment window, which is accounting for about 65% of office collections. A new eight-position switchboard will augment the SATT equipment in handling long-distance operations.

At Wahoo and David City, construction of new buildings is now under way. They will be one story structures and will also provide drive-in pay windows. The new building at Ashland was completed last year. All four offices are of masonry construction with facing in rancho brick. When these projects are completed, the Company's dial telephones will increase from 75% to about 84%.

"Drive-in" payment windows are a popular feature of modern telephone business offices. This one, at Beatrice, is accounting for about 65% of office collections.



Architect's drawing shows modern lines of new exchange building to be constructed at Wahoo, Nebraska, this year. A similar structure is planned for David City.

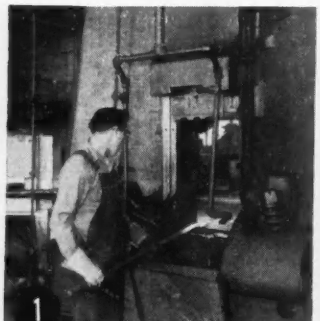


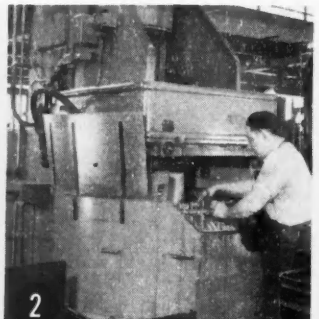
The instant of pulling the picks is always a dramatic one. George P. Barney, General Plant Superintendent, does the job for the Dunbar, Nebraska, cutover to Strowger Automatic equipment.

A Broken Pair of Pliers Starts Business of TOOLMAKERS FOR A CENTURY

"1857-1957 TO COMMEMORATE THE 100TH ANNIVERSARY OF MATHIAS KLEIN & SONS THIS PLAQUE IS PRESENTED TO *MATHIAS A. KLEIN, SR.*, WITH RESPECT AND GRATITUDE FROM HIS FAITHFUL EMPLOYEES," *reads the inscription on this presentation to the Klein firm's president, a grandson of the company's founder. The plaque was presented in behalf of all Klein employees by (l. to r.) Arthur Chrosnik, Walter Kerkowski, Joseph Menzel and, on Mr. Klein's left, Nicholas Michels. "It was a complete surprise to me," beamed a pleased Mr. Klein.*

Around 1855 Mathias Klein operated a Chicago blacksmith shop, which also served as an evening gathering place for telegraph linemen who were pushing communication lines westward. When one of these men asked Mr. Klein to repair a broken pair of pliers, the blacksmith did so by forging a new half from the finest tool steel, filing it into shape, tempering it and refitting it into place. The lineman later came back to have the other half of the pliers made by Mr. Klein, and this spurred the blacksmith on to making complete pairs of pliers. Because of their quality, they quickly "caught on," and in 1857 Mathias Klein & Sons was established. This year the firm is 100 years old—and it is still a leader in the field of linemen's tools and equipment.





(1) *This drop hammer hits with a force of 50,000 foot pounds to forge halves of pliers from red-hot bars of the finest tool steel. Furnace heats sections of the bar steel to 2000°, and trim press cuts off excess metal after forging. Klein's pride in top quality, however, still calls for 61 additional machine and hand operations in the manufacturing process. It's the same kind of pride that Mathias Klein had in the 1850's when he began making pliers in his Chicago blacksmith shop.*

(2) *The Klein plant is modern inside as well as outside. This machine has 24 spindles for drilling, reaming, counterboring and countersinking plier parts to close tolerances. Klein's mass production would stagger even the wildest imagination of the blacksmith in his 1857 shop, but he would recognize the same insistence on quality that assured him his success.*

(3) *Heat-treated and oil-tempered, pliers are properly conditioned for specific work to be performed. The first Klein pliers were made for telegraph linemen who were stretching communication lines westward into America's frontier. This venture into toolmaking led the Klein founder to manufacturing of other specialized tools and equipment.*

(4) *Klein climbers, belts and safety straps give the telephone lineman a greater degree of safety and confidence. Klein's top-quality products may be ordered from Automatic Electric's five friendly warehouses.*

It Just Takes a Little "Sell"

TO MAKE PAYSTATIONS PAY

Many a motorist has been mighty grateful for an outdoor paystation in the right place!

Fifty . . . seventy-five . . . one hundred dollars a month —and even more can be brought in by a single paystation installation. Actual figures show at least one instance where an outdoor booth averaged more than $160 a month!

So it's easy to see that paystations can be good revenue builders. But to put them to work in your area takes a little selling. Remind merchants who may be in the habit of "loaning" their business telephones that they may be losing out on an order while their telephone is tied up. They may lose toll charges on calls made by customers who "forget" to pay for them.

On the *positive* side, point out that paystations actually stimulate trade, because people come in to use the telephone, and often buy something before they leave the store. (Incidentally, when paystations are installed, folks generally use the telephone more than they did before.)

Another feature that makes them easy to sell is that Autelco paystations now come in *color*. There is a choice of eight colors — either two-tone or full color. Color makes paystations more cheerful, attracts more users— and in many locations makes it easy to fit the paystation handsomely into its surroundings.

Location is important. Paystations should be located in prominent, readily accessible places where they can be easily seen, yet will not create traffic congestion. Go out and look over likely spots for revenue-producing paystations. Make surveys, noting where vehicular and pedestrian traffic tend to go. Count the number of people entering a store or passing a given point over a particular period of time.

Because outdoor booths can be used 24 hours a day, they are becoming widely used—even directly outside stores and filling stations where indoor paystations are installed. Locations must be dry, readily accessible to electric power, and on ground free from terrain hazards, such as ditches, etc., which may cause injury. Clearly visible booths, well-lighted and convenient to motorists, earn the most revenue. Incidentally, it has been found that outdoor installations do not decrease earnings from indoor paystations, but provide additional revenue of their own.

When you install paystations in new locations, advertise them, using bill inserts, posters, newspaper advertisements and your own telephone directory. And use signs liberally; the word "Telephone" on your booth can be your best salesman, because it suggests that people make that call *now!*

Be sure your paystations are located in good spots, then promote them—and they will *pay*.

MEMO

Dear Harry,

Had a wonderful trip to Kansas City (the Missouri one)! Drove down 250-foot wide Paseo Parkway through the center of town, and over Cliff Drive--what a view! Also impressive were the Nelson Gallery of Art and the municipal auditorium, which can seat 24,000 persons in its several rooms.

But to business. I also went over to Automatic Electric's warehouse on Main Street, as you suggested. You were right--what a stock of supplies they have! The people there treated me swell, too, although I told them I wasn't buying anything <u>this</u> trip.

I just couldn't figure how one source could stock so many telephone supplies. I guess you have a right to say, "I told you so." Naturally, I was mainly interested in linemen's equipment, and I (stubborn to the end) named a few hard-to-get items, trying to trip them up, but they had a good supply of every one. (Guess they have the same type of "stock full" warehouses at their other locations--Chicago; Richmond, Va.; Portland, Ore., and Johnson City, N. Y.)

So now I get the full significance of your remark that "Automatic ships almost everything from stock." And how much did you say we saved on freight bills, paper work and handling just by ordering everything from one source?

I see what you mean by quality, too. Most of the tools I saw were the dependable brands you and I grew up with in the telephone business.

Well, we're heading home now. See you soon. Only wish I had time to rest up before going back to work.

Pete

Wound up buying these tools and the pouch for them, after all.

Published by

AUTOMATIC ELECTRIC

ORIGINATORS OF THE DIAL TELEPHONE

Chicago, U.S.A.

John Sharkey, *Editor*

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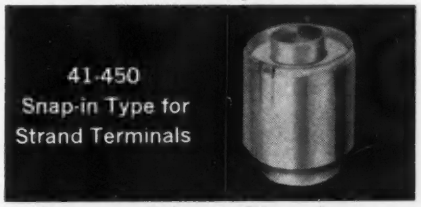
Williams, Geo. E., Co.
Williams Inspection Co., A. W. 63
Wyoming Valley Equip. Co.
York Hoover Corp.

Advertisement

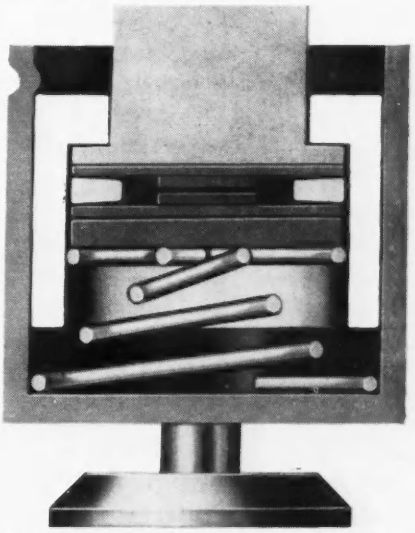
We Don't Think It's Necessary

IN the design and manufacture of the new Mytigap arresters, however the replacement of parts and reassembly in the field by operating company maintenance and repair crews has been incorporated.



The use of Spark Plug characteristics in the design of this arrester provides a durability and reliability which in our opinon obviates the necessity of replacement and reassembly of the Mytigap. You don't reassemble your spark plug with replacement parts.

Nevertheless in the interest of further economy and for competitive reasons, the come apart feature together with capsulated subassemblies has been provided for.



Sectional View of the 41-450 Assembled Mytigap Arrester for Stranterm Protection.

So, for the first time a lightning, surge or power cross arrester all in one, with self-restoring operation after functioning, for Cook Stranterm, PLX and RDX cable terminals is now available. An arrester with spark plug electrodes, — Ceramic insulation like your automobile spark plug — made of Cecotite, (a Zirconeum base ceramic made exclusively by Cook Electric Company) and replacement parts which can be individually field serviced and reassembled will introduce further protection economies.

For literature, samples, and additional information contact your nearest distributor or telephone supply salesman.

THE BACK OF THE BOOK

By JOHN G. REYNOLDS

"No Commercial Service"

MOST inhabited places have some kind of commercial telephone system even though it may be a very small one. However, there are some places that are still without commercial telephone service and last month the editors of *The Monitor* pinpointed these locations as: Pitcairn Islands, made famous by Captain Bligh and The Bounty, and still inhabited by the decendants of the mutineers; the two countries of Tibet and Nepal, their common border straddled by Mount Everest, "roof of the world"; Greenland, with 80 per cent of its area composed of icecap; and the Yemen, a small country on the Arabian Peninsula.

"From Microwave to Muleback"

YOU CAN CALL New York from Los Angeles in seconds, but it took three days — and a packmule — to complete a call to Bowlingtown, Ky., from Stafford, Kan., operator Twila Block. According to *Southwestern Telephone News* it all happened this way: An emergency call came in one morning for the tiny Kentucky mountain village, which isn't in the rate and route book. Evening Chief Operator Mary Sergeant called half a dozen points in Kentucky, including a railroad and two sheriffs. The railroad said mail went in by packmule. The sheriff suggested the state police. The state police took the message as far as the road went, turned it over to the mailman and his mule. Three days later, the called party finally reached a telephone, completed the call.

Case of The Missing Phone

LAST MONTH an Illinois Bell installer found out what happened to a telephone he had reported stolen. The mystery was solved when Chicago police arrested a shoplifter who led them to the LaSalle St. station as he explained: "I don't know why I took the items. But I sometimes get an urge to take things. I take anything."

He then opened a station locker, pulled out a neatly wrapped package and explained he picked it up near the station January 4. He didn't know what was in the package, but had kept it in the locker, paying a dime a day. Inside police found a brand new telephone — with an empty coin box. It was the one reported stolen by the Bell installer. Police statisticians did a bit of figuring and found it had cost the shoplifter $6.40 to keep the private telephone handy!

"Not Responsible"

AN ALABAMA Supreme Court Judge issued a ruling last month that should prove popular with all telephone companies. The ruling came when the Judge turned down an appeal from a wife who tried to force Southern Bell Tel. & Tel. Co., either to cut off a rival's telephone or else *monitor* her calls.

Said the judge in his ruling — "It isn't up to the telephone company, to stop another woman from making telephone calls to a married man."

"The telephone," he said, "is a passive, impersonal service. If it is used as an instrumentality for the creation of a private nuisance, the responsibility for the nuisance rests with the individual who abuses the service and not with the telephone company."

Low-Cost Transportation

DON'T be surprised if you see an installer or repairman going down the street aboard a three-wheel scooter. Right now the Michigan Bell Telephone Co., is using several three-wheelers in downtown Grand Rapids, and officials say the scooters cost as little as $5 a month to operate.

Donald Ringold, a Bell repairman, has been putt-putting on one since last fall. Before he got the scooter, he had only his tool-bag to keep his equipment in; on occasion he would have to walk a half-mile back to the office for a spare part. "Now," he says, "I keep extra parts in the cargo space in back." Mr. Ringold couldn't use a car on the job, since parking space was at a premium.

Musical Criticism

UNLESS the French equivalent of Tin Pan Alley is at least a cut above our own native variety, we're inclined to give Parisian telephone people credit for a real sense of humor. That's the reaction of the editors of Illinois Bell Telephone News, at any rate, to a recent newspaper story from the French capital. A new telephone service, *Song of the Day*, enables the customer to dial a number to hear the latest popular song.

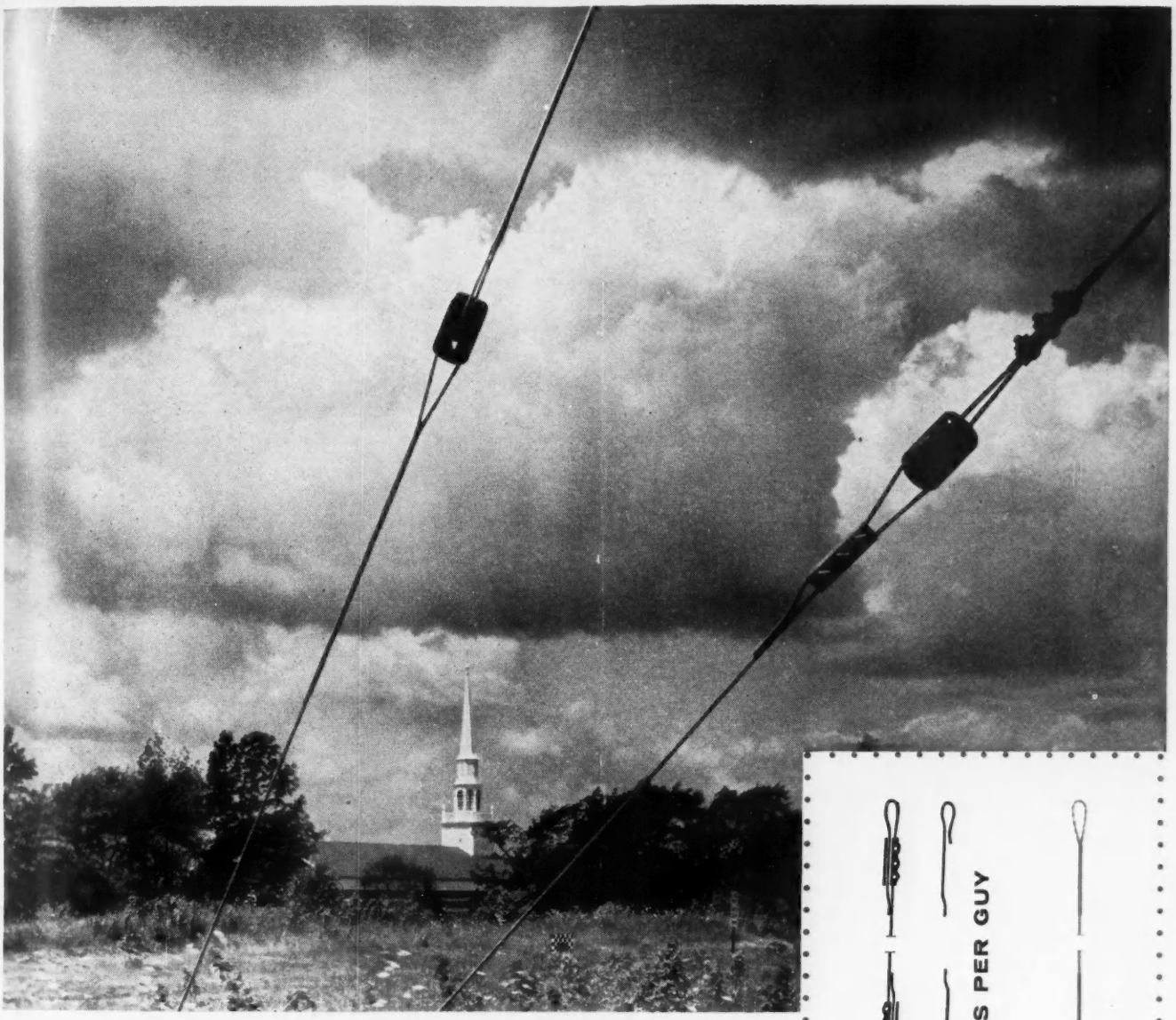
The prefix, appropriately enough, is Suffren. And aren't we all?

Art Stymies Science

TELEPHONE repairmen, in the course of their daily occupation, find some unusual causes for telephone troubles.

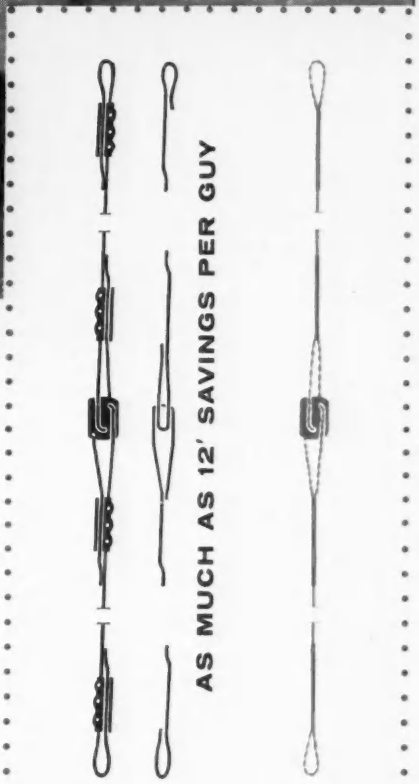
But it remained for Decatur, Ill., Plant Man Dean Wooldridge to come up with a real novelty recently. He blamed Marilyn Monroe for a case of trouble. Sent out to repair an out-of-order telephone, he found a short circuit which had been caused by the metal binding of a Marilyn Monroe calendar which had been attached to the telephone fuse box.

While calendar art, certain of our cultured friends insist, belongs in the basement, Mr. Wooldridge will hasten to add a parenthetical note that *art and fuses don't mix!*



Up to 30% savings in strand... with PLP Guy-Grip Dead-Ends

You will find real guying economy with PLP Guy-Grip dead-ends. Because they eliminate strand looping, you can use *shorter, straight* lengths of guy strand. This means as much as 12 feet savings in strand per guy. What's more, the finished installation is neat, streamlined, efficient.



PX-80

Made in accordance with or for use under U. S. Patent No. 2,761,273; other patents issued and pending.

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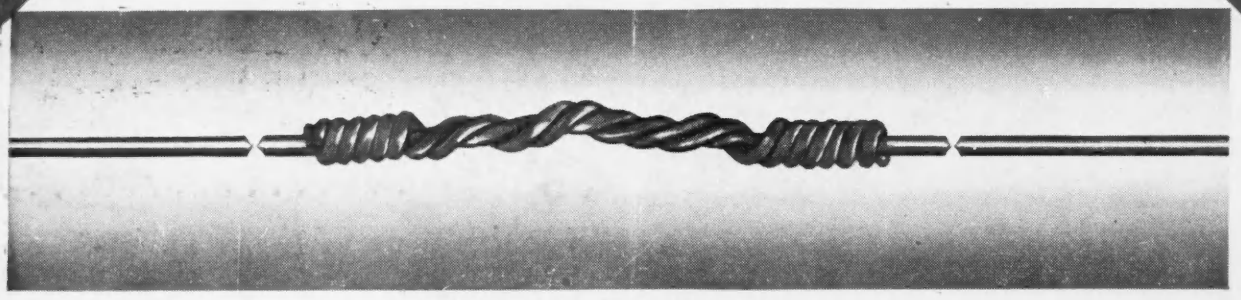
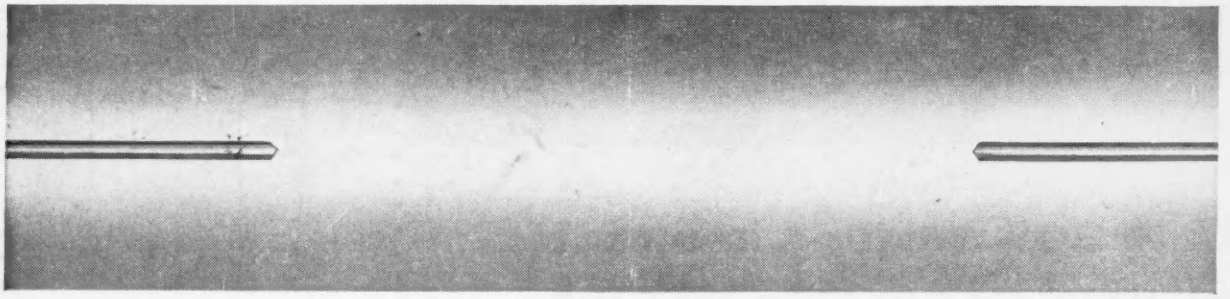


DEFECTIVE SPLICE



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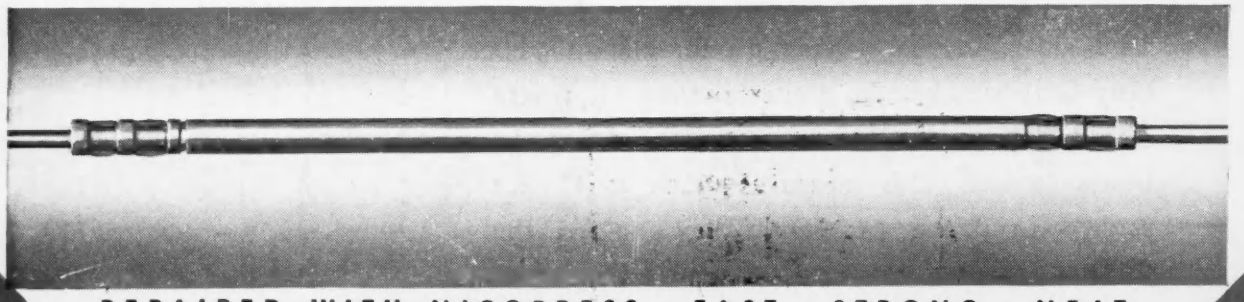

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